

Mathematics

By a group of supervisors

PARENTS' GUIDE

Interactive E-learning Application



طبقاً لآخر تعديلات أقرتها وزارة التربية والتعليم

بتصريح وتحت إشراف

MINISTRY OF EDUCATION AND TECHNICAL EDUCATION

SECOND TERM

4th PRIMARY

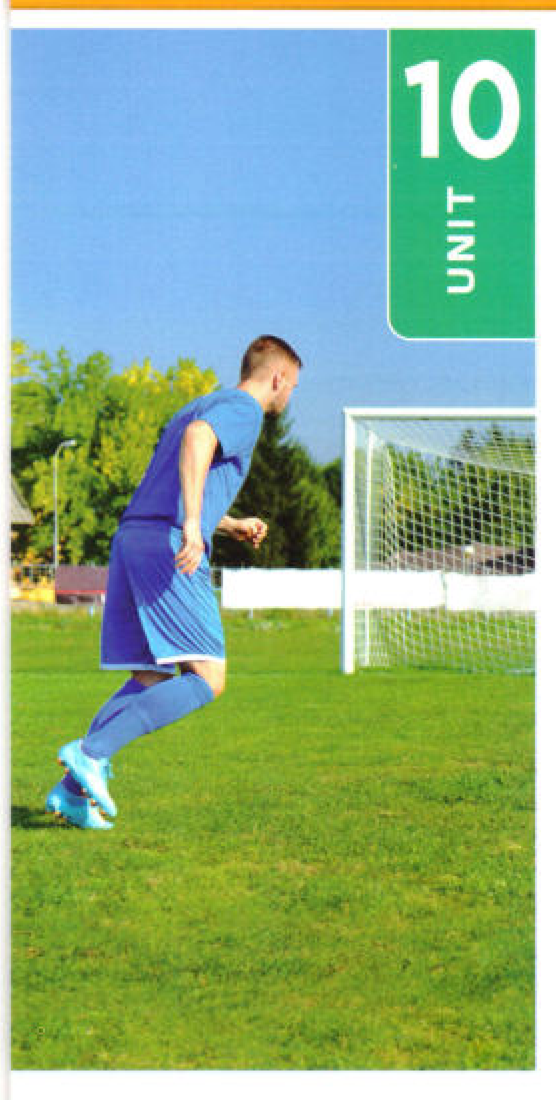
2024

Index of Theme 3 : Fractions, Decimals, and Proportional Relationships.



UNIT 9

Fractions



UNIT 10

Decimals



UNIT 11

Data with Fractions

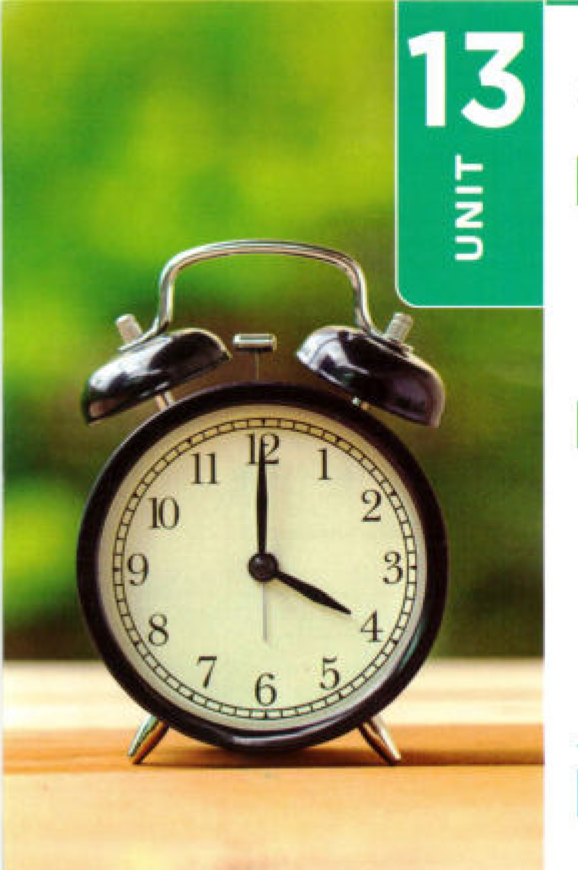
Index of Theme 4 : Applications of Geometry and Measurement.



Geometry

Concept 1 Geometric Concepts

Concept 2 Classifying Shapes



Angles of a Circle

Concept 1 Breaking the Circle into Angles

Concept 2 Measuring and Drawing Angles

THEME THREE

Fractions, Decimals, and Proportional Relationships

UNIT 9

Fractions

- **Concept 1 :** Composing and Decomposing Fractions
- **Concept 2 :** Comparing Fractions
- **Concept 3 :** Multiplication and Fractions



Did you know ?!

Newborn babies spend $\frac{2}{3}$ of a day sleeping. School-age children sleep for $\frac{5}{12}$ of a day. Adults sleep for $\frac{1}{4}$ of a day.

Which age group spends the least time sleeping ?
Which spends the greatest time ?



Concept 1 Composing and Decomposing Fractions

Lesson No.	Lesson Name	Learning Objectives
Lessons 1 to 3	Unit Fractions	• Students will define unit fractions. • Students will identify unit fractions. • Students will compose other fractions with unit fractions.
	Decomposing Fractions	• Students will decompose fractions into unit fractions.
	More of Decomposing Fractions	• Students will represent fractions with repeated addition and subtraction of unit and other fractions.
Lesson 4	Fractions and Mixed Numbers	• Students will define mixed numbers. • Students will define improper fractions. • Students will explain how mixed numbers and improper fractions relate to unit fractions.
Lessons 5 to 7	Adding and Subtracting Fractions	• Students will add and subtract fractions and whole numbers.
	Adding Mixed Numbers	• Students will add mixed numbers with like denominators.
	Subtracting Mixed Numbers	• Students will subtract mixed numbers with like denominators.



Lessons 1 to 3

- Unit Fractions
- Decomposing Fractions
- More of Decomposing Fractions

Remember Unit fractions and proper fractions

Amal cut a pizza into 8 equal pieces.
She ate 1 piece. Bassem ate 3 pieces.
What fraction of the pizza did each one of them eat ?

- Amal ate 1 piece of 8 equal pieces.



The **fraction** of the pizza she ate = $\frac{1}{8}$ ← numerator, ← denominator

$\frac{1}{8}$ is a **unit fraction**, it is read as one eighth.

- Bassem ate 3 pieces of 8 equal pieces.

The fraction of the pizza he ate = $\frac{3}{8}$

$\frac{3}{8}$ is a **proper fraction** , it is read as three eighths.

Reviewing Vocabulary

Here are some math vocabulary words that you should know.

Fraction	a number that names a part of a whole or a part of a group.
Denominator	the number below the bar in a fraction that tells how many equal parts there are.
Numerator	the number above the bar in a fraction that tells how many equal parts have been counted.
Unit fraction	a fraction has a numerator of 1.
Proper fraction	a fraction its numerator is less than its denominator.

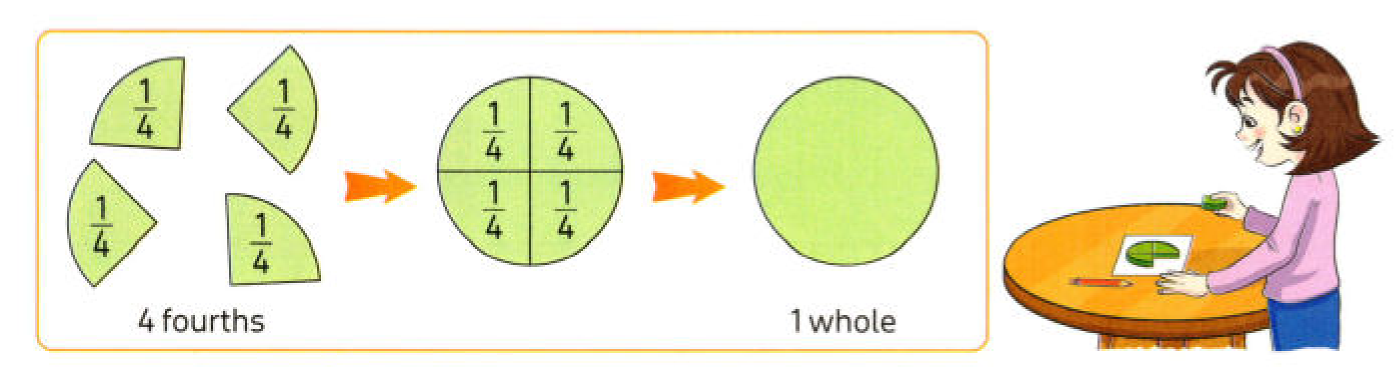
Note
The unit fractions are also proper fractions.

Notes for parents :

- Ask your child to give you an example for unit fraction and another example for proper fraction.

Learn 1 Compose fractions

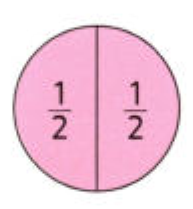
- You can put fractions together to compose [build] a new fraction or one whole.



When you put 4 fourths together, you will get 1 whole.

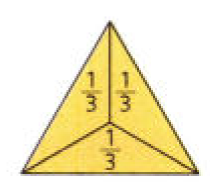
4 fourths $= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$ whole

You can use unit fractions to compose one whole



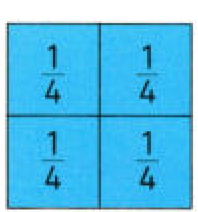
2 halves = 1 whole

$\frac{1}{2} + \frac{1}{2} = 1$



3 thirds = 1 whole

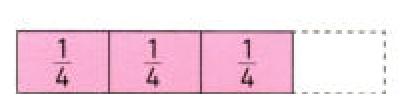
$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$



4 fourths = 1 whole

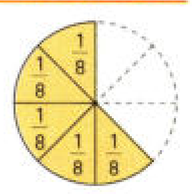
$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$

Also, you can use unit fractions to compose proper fraction



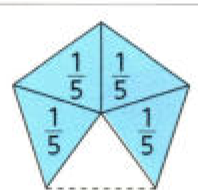
The colored parts $= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$

Read : Three fourths



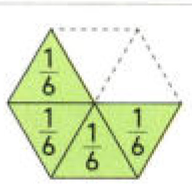
The colored parts $= \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$

Read : Five eighths



The colored parts $= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$

Read : Four fifths



The colored parts $= \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{4}{6}$

Read : Four sixths

- Encourage your child to build models to show one whole using unit fractions.

Learn 2 Decompose fractions

- Decomposing a fraction means breaking it into separate units or parts.
- You can decompose one whole into unit fractions as the opposite chart.

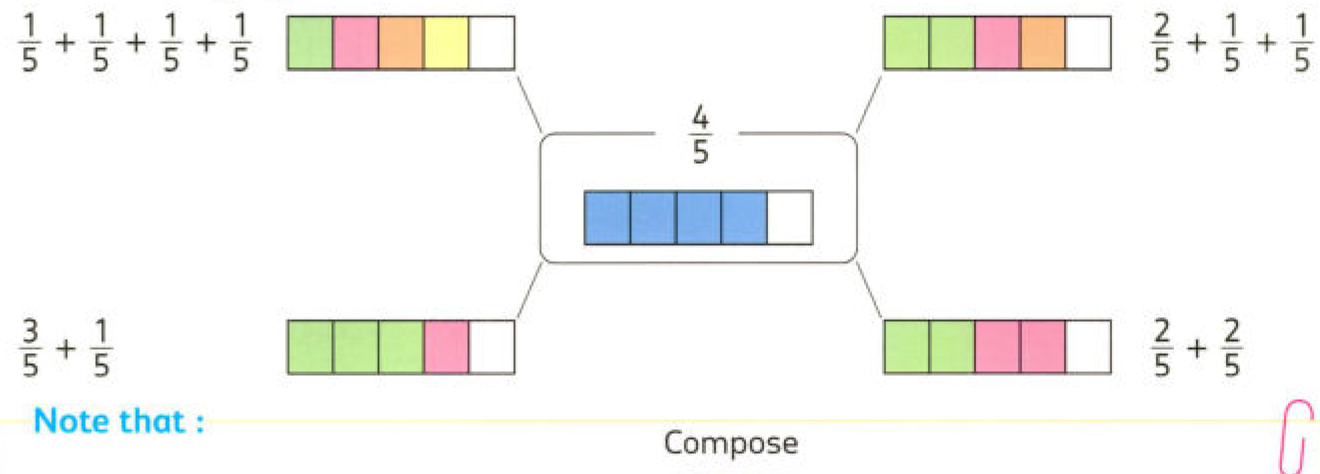
$$1 = \frac{1}{2} + \frac{1}{2}$$
$$= \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$$
$$= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$
$$= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$$
$$= \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$
$$= \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$
$$= \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \cdots$$

1							
$\frac{1}{2}$	$\frac{1}{2}$						
$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$					
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$				
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$			
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$		
$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

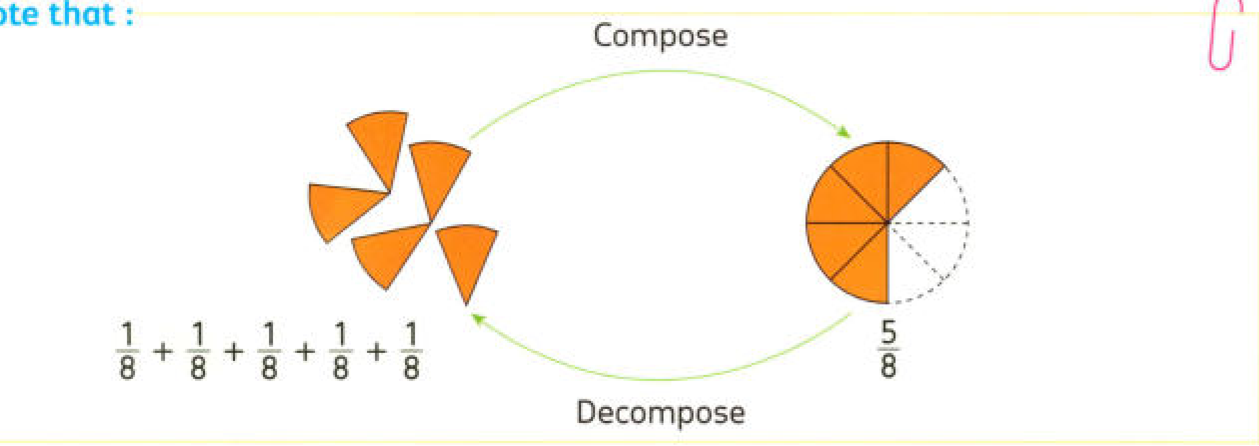
Notice

$$1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} = \frac{8}{8} = \cdots$$

- **You can use unit fractions or proper fractions to decompose a fraction as in the following figure.**



Note that :



- Help your child to use rectangles or circles to build a fraction using unit fractions.

Example 1

Create a model to represent each of the following :

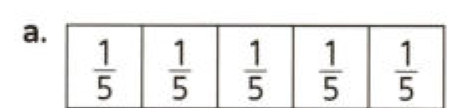
a. One whole = $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

b. One whole = $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

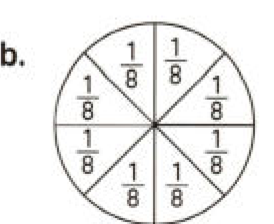
You can use rectangles or circles

Solution 

a.



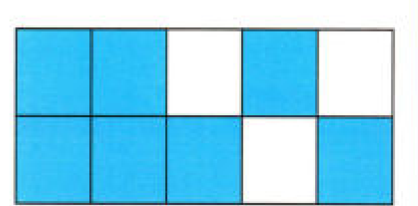
b.



Example 2

What is the fraction that represents the colored parts ?

Write an equation using the unit fractions to show this fraction.



Solution

$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{7}{10}$$

Example 3

Decompose each of the following fractions in two ways. Draw a model.

a. $\frac{4}{5}$

b. $\frac{5}{8}$

Solution 

	First way	Another way
a.	$\frac{4}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{4}{5} = \frac{2}{5} + \frac{2}{5}$
b.	$\frac{5}{8} = \frac{2}{8} + \frac{3}{8}$	$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{3}{8}$

• Try to find another ways to decompose fractions.

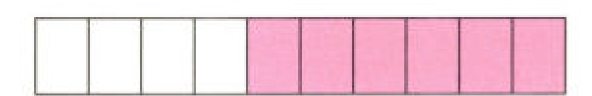
• Help your child to decompose fractions in several ways.

Example 4

Complete.

a. The numerator of the fraction $\frac{5}{9}$ is ....

b. The shaded part = ...



c. $\frac{\quad}{7} = 1$

d. $\frac{3}{8} = \frac{1}{8} + \frac{\quad}{8}$

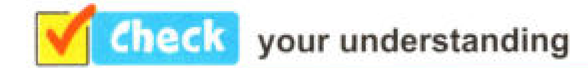
e. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{\quad}{\quad}$

f. The number of sixths in one whole = ...

Solution



a. 5 b. $\frac{6}{10}$ c. 7 d. 2 e. $\frac{4}{7}$ f. 6



Check your understanding

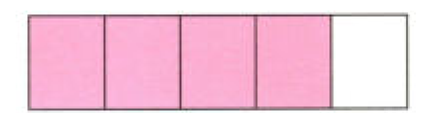
1. Write the fraction that represents $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

Draw a model for this fraction.

....

Work area

2. Use unit fractions, to write an equation represents the fraction for the colored parts.



....

3. Write an equation to decompose $\frac{3}{4}$ into unit fractions.

....

4. Decompose the following fraction in two ways.

$\frac{3}{6} = \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square}$ or $\frac{3}{6} = \frac{\square}{\square} + \frac{\square}{\square}$

• Encourage your child to use models or drawings to compose and decompose fractions in this page.

Exercise 1 on lessons 1 to 3

▸ Unit Fractions
▸ Decomposing Fractions
▸ More of Decomposing Fractions

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Fill in the table with information about each fraction.

	Total number of equal parts	Total number of equal parts shaded	Word form	Fraction form
a.	______	______	______	______
b.	______	______	______	______
c.	______	______	______	______
d.	______	______	______	______
e.	______	______	______	______
f.	______	______	______	______

2. Record a definition of each term.

a. Fraction : ______________________

b. Numerator : ______________________

c. Denominator : ______________________

d. Unit fraction : ______________________

e. Proper fraction : ______________________

3. Create a model to represent each of the following. Use circles or rectangles.

a. $\frac{1}{2} + \frac{1}{2} = 1$ whole

b. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$ whole

c. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$ whole

4. How many unit fractions compose each of the following fractions ?

a. $\frac{3}{5}$ ....

b. $\frac{6}{7}$ ....

c. $\frac{4}{9}$ ....

d. Five eighths ....

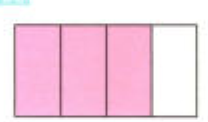
e. Three quarters ....

f. Seven tenths ....

5. What is the fraction that represents the colored parts ?

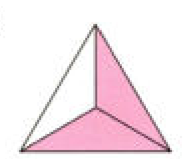
Write an equation using unit fractions to show how to compose this fraction.

a.



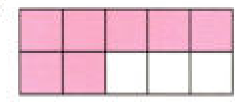
....

b.



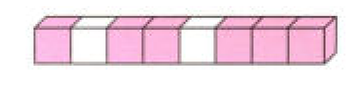
....

c.



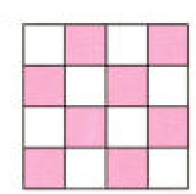
....

d.



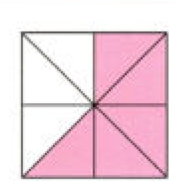
....

e.



....

f.

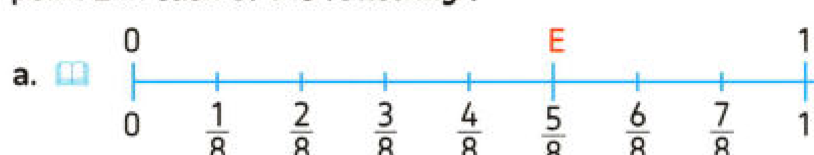


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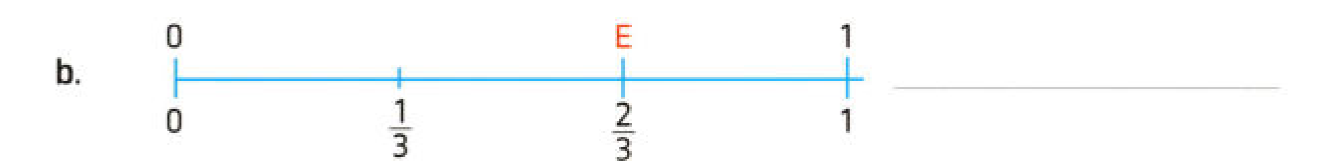
6. Complete the table.

Model	Fraction	Unit fraction	Equation to form the fraction
a.	....	....	....
b.	$\frac{5}{6}$	....	....
c.	....	$\frac{1}{8}$	....
d.	....	....	$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

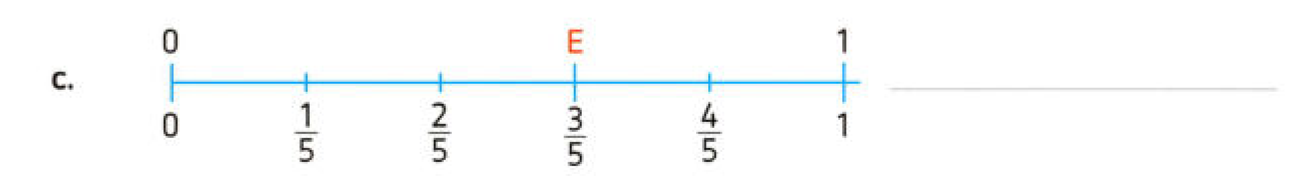
7. Look at point E on the number line. How many unit fractions do you need to represent point E in each of the following ?

a. 

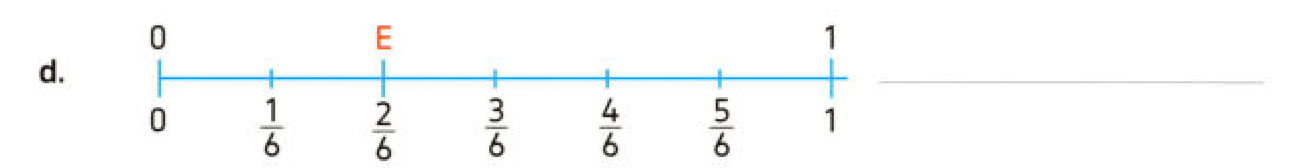
____

b. 

____

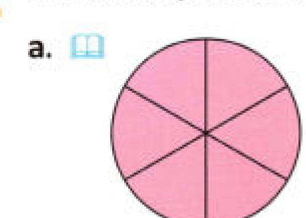
c. 

____

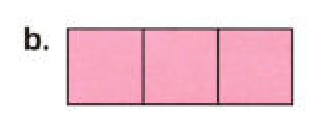
d. 

____

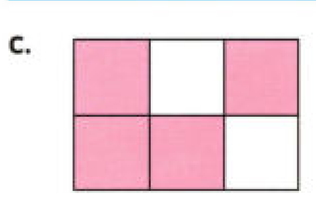
8. Write an equation to decompose each of the following into unit fractions.

a. 

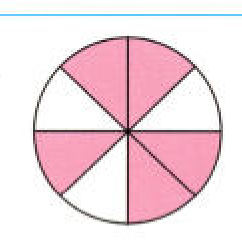
____

b. 

____

c. 

____

d. 

____

9. Write an equation decomposing each of the following fractions into unit fractions.

a. $\frac{3}{5}=$ ______ b. $\frac{5}{7}=$ ______ c. $\frac{4}{5}=$ ______

d. $\frac{3}{8}=$ ______ e. $\frac{2}{6}=$ ______ f. $\frac{7}{11}=$ ______ [Cairo 23]

10. Decompose each of the following proper fractions in two ways.

	First way	Another way
a. $\frac{3}{5}$	$\frac{3}{5} = \frac{\square}{\square} + \frac{\square}{\square}$	$\frac{3}{5} = \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square}$
b. $\frac{7}{8}$	$\frac{7}{8} = \frac{\square}{\square} + \frac{\square}{\square}$	$\frac{7}{8} = \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square}$
c. $\frac{5}{6}$	$\frac{5}{6} =$	$\frac{5}{6} =$ ....
d. $\frac{4}{9}$	$\frac{4}{9} =$	$\frac{4}{9} =$ ....
e. $\frac{4}{7}$	$\frac{4}{7} =$	$\frac{4}{7} =$ ....

11. Draw models and write as many equations as you can to decompose the given fractions.

a. $\frac{9}{12}$ ....

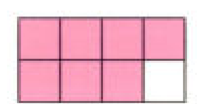
b. $\frac{12}{15}$ ....

c. $\frac{15}{18}$ ....

d. $\frac{18}{24}$ ....

12. Write the fraction that represents each model, then write as many equations as possible to decompose each model.

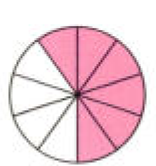
a.



....

....

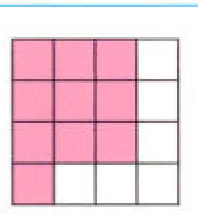
b.



....

....

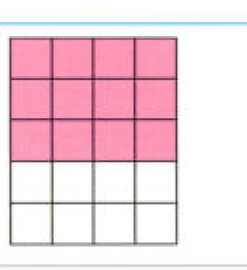
c.



....

....

d.

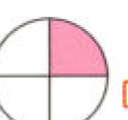


....

....

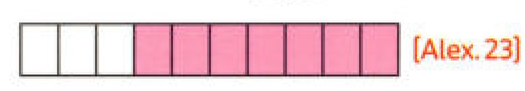
13. Complete.

a. The fraction which represents the opposite figure = ...



[El-Menia 23]

b. The shaded parts = $\frac{\dots}{\dots}$



[Alex. 23]

c. The number of unit fractions in $\frac{8}{9}$ is .... [Souhag 23]

d. One whole = ... fourths

e. $\frac{1}{3}+\frac{1}{3}=$ ....

f. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=$ .... [Giza 23]

g. .... $=\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}$

h. .... $=\frac{1}{10}+\frac{1}{10}+\frac{1}{10}+\frac{1}{10}$

i. $\frac{8}{8}=$ ....

j. $\frac{\square}{5}=1$

k. $\frac{9}{\square}=1$ [Cairo 23]

l. $\frac{1}{7}+$ .... $+\frac{4}{7}=1$

m. .... $+\frac{1}{5}=\frac{4}{5}$

n. Two thirds $=\frac{\square}{\square}+\frac{\square}{\square}$

o. Three sevenths $=\frac{\square}{\square}+\frac{\square}{\square}+\frac{\square}{\square}$

p. $\frac{\square}{\square}+\frac{\square}{\square}+\frac{\square}{\square}+\frac{\square}{\square}=1$

14. Two families went to the local restaurant. Each family ordered the feteer meshaltet. Eman's family wanted their feteer cut into 6 equal pieces. Ayman's family wanted their feteer cut into 8 equal pieces. If both feteer are the same size, which family will have larger pieces to eat ? How do you know ?

....

....

15. Mazen needed $\frac{3}{4}$ cup of sugar for his recipe. He had a measuring cup that held $\frac{1}{4}$ cup of sugar. How many times will he need to fill the measuring cup for his recipe ?

....

....

16. Omar ate $\frac{1}{5}$ of a bag of popcorn. He and his brother Amir shared the rest of the bag. Write equations to show two ways they could share the remaining popcorn.

....

....

17. Samira cut a cake into 8 equal parts and ate one part of them. What is the fraction that represents the remaining parts ? [Cairo-El Sayda Zainab 22]

....

....

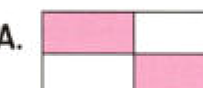
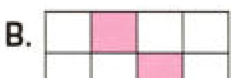
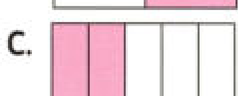
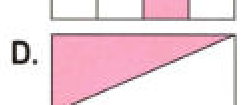
Multiple Choice Questions

Choose the correct answer.

1. The numerator of the fraction $\frac{5}{9}$ is .... [El-Monofia 23]

A. 9 B. 4
C. 5 D. 14

2. The model which represents $\frac{2}{5}$ is ....

A. 
B. 
C. 
D. 

3. Five eighths = ... [Cairo-Rod El Farag 23]

A. $\frac{5}{8}$ B. $\frac{5}{13}$ C. $\frac{8}{5}$ D. $\frac{8}{13}$

4. Which of the following represents a unit fraction? [El-Menia 23, El-Monofia 23]

A. $\frac{7}{4}$ B. $\frac{7}{7}$ C. $\frac{4}{7}$ D. $\frac{1}{7}$

5. $\frac{5}{\ldots} = 1$ [Giza 23]

A. 2 B. 3
C. 5 D. 10

6. Which of the following expression is equal to $\frac{7}{9}$? [Alex. 23]

A. $\frac{1}{3}+\frac{1}{3}+\frac{5}{3}$ B. $\frac{2}{4}+\frac{5}{5}$
C. $\frac{1}{9}+\frac{2}{9}+\frac{2}{9}$ D. $\frac{4}{9}+\frac{3}{9}$

7. $\frac{3}{7}+ \ldots\ldots + \frac{2}{7} = \frac{6}{7}$

A. $\frac{1}{7}$ B. $\frac{2}{7}$ C. $\frac{3}{7}$ D. $\frac{4}{7}$

8. Which of the following expressions is the same as $\frac{5}{6}$? [Cairo-Middle of Cairo 22]

A. $\frac{1}{6}+\frac{2}{6}+\frac{3}{6}+\frac{4}{6}+\frac{5}{6}$
B. $\frac{5}{6}+\frac{5}{6}+\frac{5}{6}+\frac{5}{6}+\frac{5}{6}$
C. $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$
D. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

9. $\frac{3}{7}=\frac{1}{7}+\frac{1}{7}+ \ldots\ldots$ [El-Monofia 23]

A. $\frac{1}{7}$ B. $\frac{1}{5}$ C. $\frac{5}{7}$ D. $\frac{7}{7}$

10. Which equation is NOT a correct decomposition of $\frac{10}{11}$? [Qena 22]

A. $\frac{1}{11}+\frac{2}{11}+\frac{3}{11}+\frac{4}{11}=\frac{10}{11}$
B. $\frac{5}{11}+\frac{5}{11}=\frac{10}{11}$
C. $\frac{1}{11}+\frac{2}{11}+\frac{8}{11}=\frac{10}{11}$
D. $\frac{1}{11}+\frac{2}{11}+\frac{2}{11}+\frac{2}{11}+\frac{3}{11}=\frac{10}{11}$

11. The number of unit fractions which represent the point E is ....

0, E, 1
0, $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{5}{8}$, $\frac{6}{8}$, $\frac{7}{8}$, 1

A. 2 B. 4
C. 6 D. 8

Lesson 4

Fractions and Mixed Numbers

Learn — Improper fractions and mixed numbers

There are two whole waffles and one fourth of a waffle. There are nine fourths of waffles.



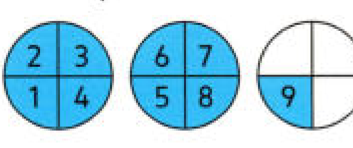


You can write the amount of waffles as an improper fraction or as a mixed number.

- An **improper fraction** has a numerator that is greater than or equal to its denominator.

$\frac{9}{4}$ ← Improper fraction

To write an improper fraction, count the parts.



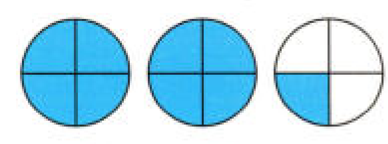
$\frac{9}{4}$

$\frac{9}{4}$ means : you have 9 parts , each part is a fourth $\left[\frac{1}{4}\right]$ of a whole.

- A **mixed number** is made up of a whole number and a proper fraction.

Whole number → $2\frac{1}{4}$ ← Proper fraction

To write a mixed number, count the wholes and parts.



$\frac{4}{4} + \frac{4}{4} + \frac{1}{4} = 2\frac{1}{4}$

$2\frac{1}{4}$ read as "Two and one fourth".

Notes for parents :

- In this lesson, your child will write and make connection between mixed numbers and improper fractions.

Remember The definitions of the three types of fractions

• Proper fraction

A proper fraction is just a fraction where its numerator is **less than** its denominator.

Numerator < Denominator

• For Example :

$\frac{1}{5}$ [One fifth] | $\frac{2}{6}$ [Two sixths] | $\frac{3}{8}$ [Three eighths]

• Improper fraction

An improper fraction is just a fraction where its numerator is **greater than** or **equal to** its denominator.

Numerator = Denominator

or

Numerator > Denominator

• For Example :

$\frac{4}{4}$ [Four fourths] , $\frac{8}{3}$ [Eight thirds] , $\frac{6}{5}$ [Six fifths]

Note that

Improper fraction is greater than or equal to 1

• Mixed number

A mixed number is a number made up of a whole number and a proper fraction.

• For Example :

$1\frac{3}{4}$ [One and three fourths] , $2\frac{1}{7}$ [Two and one seventh]

Remark 1

Any whole number not equal to 0 can be written in the form of an improper fraction.

Examples :

• $1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \cdots$ etc.

• $2 = \frac{2}{1} = \frac{4}{2} = \frac{6}{3} = \frac{8}{4} = \cdots$ etc.

• $5 = \frac{5}{1} = \frac{10}{2} = \frac{15}{3} = \frac{20}{4} = \cdots$ etc.

• $10 = \frac{10}{1} = \frac{20}{2} = \frac{30}{3} = \frac{40}{4} = \cdots$ etc.

Remark 2

Any mixed number can be written as an improper fraction and vice versa.

Notes for parents :

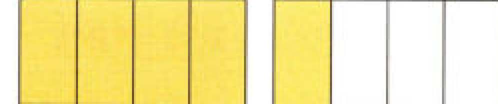
• Ask your child what is the difference among a proper fraction, an improper fraction and a mixed number ?

Here's how to change from one form to another

To change a mixed number into an improper fraction, you can multiply then add as shown below.	To change an improper fraction into a mixed number, you can divide.
$2\frac{1}{4} = \frac{9}{4}$ ← (4 × 2) + 1 ; ← denominator stays the same.	The fraction bar stands for "divided by" So, $\frac{9}{4}$ means "9 ÷ 4"
So, $2\frac{1}{4} = \frac{9}{4}$	$4\overline{)9}$ = 2 ← number of wholes; − 8; 1 ← number of fourths
	9 ÷ 4 = 2 R 1 So, $\frac{9}{4}$ is equal to $2\frac{1}{4}$

Example 1

Observe the model, then answer the following questions :



1. What is the unit fraction used to compose this improper fraction ?
2. How many colored unit fractions in the model ?
3. What is the improper fraction represented by this model ?
4. What is the mixed number that represented by this model ?

Solution



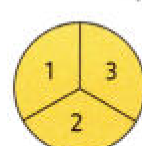
1. $\frac{1}{4}$ 2. 5 3. $\frac{5}{4}$ 4. $1\frac{1}{4}$

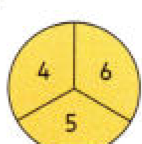
Example 2

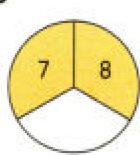
Draw a model that represents the improper fraction $\frac{8}{3}$

Solution



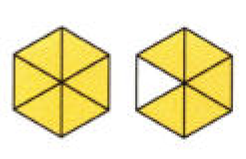


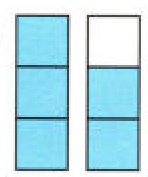


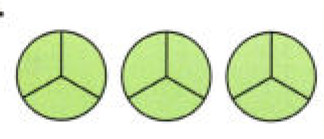


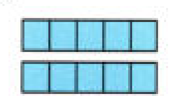
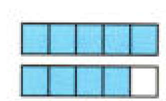
Example 3

Write an improper fraction for the colored parts. Then write each as a mixed number or as a whole number.

a. 

b. 

c. 

d.  

Solution



You can count unit fractions.

a. $\frac{11}{6} = 1\frac{5}{6}$ b. $\frac{5}{3} = 1\frac{2}{3}$ c. $\frac{9}{3} = 3$ d. $\frac{19}{5} = 3\frac{4}{5}$

• Ask your child to write the × and + symbols when changing to improper fraction. Marking the arrows to show the direction to follow may help your child do the operations in the correct orders.

Example 4

Write each of the following mixed numbers as an improper fraction.

a. $2\frac{3}{4}$

b. $3\frac{5}{8}$

Solution

a. $2\frac{3}{4} = \frac{11}{4}$ [Think: $\frac{(4 \times 2) + 3}{4}$]

b. $3\frac{5}{8} = \frac{29}{8}$ [Think: $\frac{(8 \times 3) + 5}{8}$]

Example 5

Write each of the following improper fractions as a mixed number.

a. $\frac{3}{2}$

b. $\frac{26}{3}$

c. $\frac{39}{4}$

d. $\frac{13}{7}$

Solution

a. $\frac{3}{2} = 1\frac{1}{2}$ [Think: $3 \div 2 = 1$ R 1]

b. $\frac{26}{3} = 8\frac{2}{3}$ [Think: $26 \div 3 = 8$ R 2]

c. $\frac{39}{4} = 9\frac{3}{4}$ [Think: $39 \div 4 = 9$ R 3]

d. $\frac{13}{7} = 1\frac{6}{7}$ [Think: $13 \div 7 = 1$ R 6]

Check your understanding

1. Draw a model to represent $2\frac{2}{3}$

2. Draw a model to represent $\frac{15}{6}$

3. Write each mixed number as an improper fraction.

a. $3\frac{3}{4}$ ______

b. $6\frac{3}{5}$ ______

c. $2\frac{4}{5}$ ______

d. $7\frac{2}{9}$ ______

4. Write each improper fraction as a mixed number.

a. $\frac{18}{5}$ ______

b. $\frac{10}{3}$ ______

c. $\frac{18}{4}$ ______

d. $\frac{35}{6}$ ______

Notes for parents :

- Let your child check his/her answers by changing improper fractions back to mixed numbers and mixed numbers back to improper fractions.

Exercise **2** on lesson 4

Fractions and Mixed Numbers

REMEMBER   UNDERSTAND   APPLY   PROBLEM SOLVING   From the school book



1. **State which is a proper fraction, an improper fraction or a mixed number in each of the following.**

a. $\frac{5}{6}$ ____________   b. $\frac{6}{5}$ ____________   c. $\frac{12}{7}$ ____________

d. $\frac{6}{7}$ ____________   e. $5\frac{3}{8}$ ____________   f. $3\frac{5}{12}$ ____________

2. **Choose the best term from the box.**

A mixed number
A proper fraction
An improper fraction

a. ____________ is a fraction greater than or equal to 1.

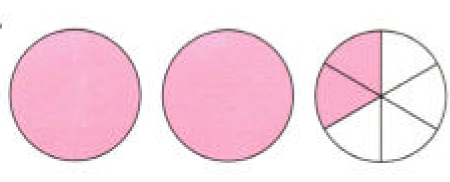
b. ____________ is made up of a whole number and a proper fraction.

c. ____________ is a fraction where its numerator is less than its denominator.

3. **Choose the correct mixed number for each picture from the box.**

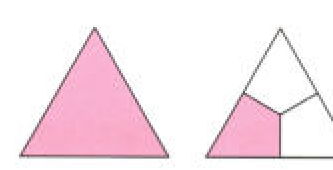
$2\frac{1}{5}$, $2\frac{1}{4}$, $1\frac{1}{3}$, $3\frac{4}{6}$, $2\frac{2}{6}$, $1\frac{2}{5}$

a.



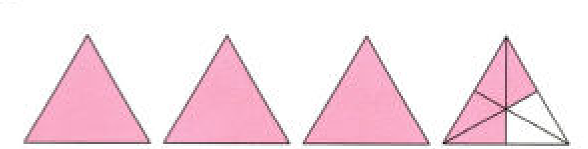
____

b.



____

c.

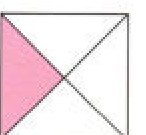


____

d.



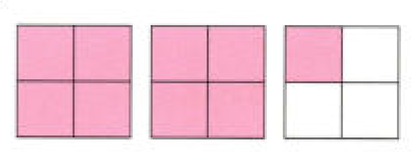




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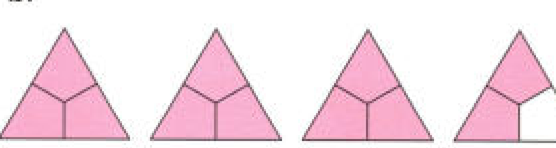
4. **Write an improper fraction for the colored parts. Then write each as a mixed number or as a whole number.**

a.



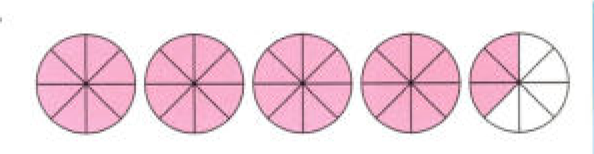
____________ = ____________

b.



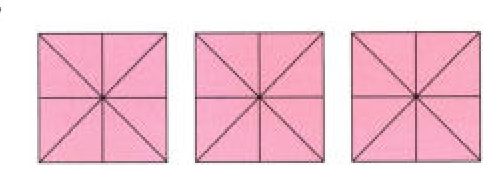
____________ = ____________

c.



______ = ______

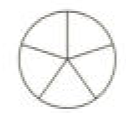
d.



______ = ______

5. Shade the model to represent the following mixed numbers, then write the equivalent improper fraction.

a. $3\frac{1}{5}$





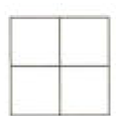
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b. $2\frac{1}{3}$



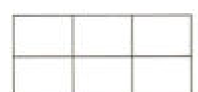
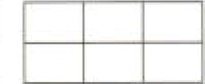
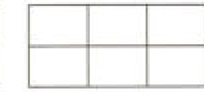
______

c. $1\frac{1}{4}$



______

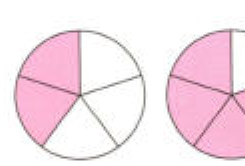
d. $2\frac{1}{6}$

______

6. Write the following fractions in the form of improper fraction and mixed number.

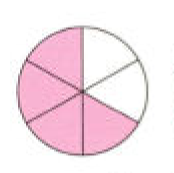
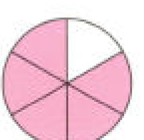
a.



Improper fraction ______

Mixed number ______

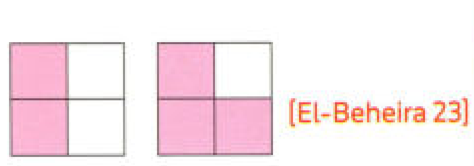
b.

Improper fraction ______

Mixed number ______

c.

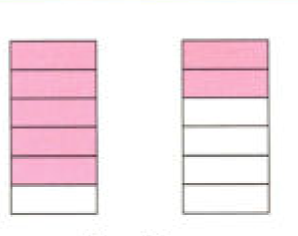



[El-Beheira 23]

Improper fraction ______

Mixed number ______

d.



Improper fraction ______

Mixed number ______

7. Draw a model for each of the following mixed numbers. Then write each mixed number as an improper fraction.

a. $4\frac{1}{4}$

b. $2\frac{1}{5}$

c. $1\frac{1}{2}$

d. $3\frac{2}{3}$

8. Draw a model for each of the following improper fractions. Then write each improper fraction as a mixed number.

a. $\frac{3}{2}$

b. $\frac{7}{3}$

c. $\frac{16}{6}$

d. $\frac{32}{5}$

9. Write each mixed number as an improper fraction.

a. $3\frac{1}{2}$ = ...

b. $2\frac{1}{6}$ = ...

c. $6\frac{7}{8}$ = ...

d. $5\frac{1}{4}$ = ...

e. $4\frac{1}{5}$ = ...

f. $6\frac{2}{3}$ = ...

g. $12\frac{2}{3}$ = ...

h. $9\frac{1}{4}$ = ...

i. $8\frac{2}{5}$ = ...

10. Write each improper fraction as a mixed number or as a whole number.

a. $\frac{9}{2}$ = ...

b. $\frac{19}{5}$ = ...

c. $\frac{25}{3}$ = ...

d. $\frac{42}{6}$ = ...

e. $\frac{34}{8}$ = ...

f. $\frac{49}{7}$ = ...

g. $\frac{36}{4}$ = ...

h. $\frac{28}{9}$ = ...

i. $\frac{23}{4}$ = ...

11. Complete.

a. The proper fraction has the numerator .... than the denominator. [El-Monofia 22]

b. $\frac{7}{2}$ is a/an .... fraction. [Giza - El Omrania 22]

c. $3\frac{3}{4}$ = ... [in the form of an improper fraction] [Qena 22]

d. $3\frac{1}{2}$ = ... [as an improper fraction] [Luxor 23]

e. $2\frac{1}{4}$ = ... [as an improper fraction] [Giza 23]

f. $3\frac{2}{7}$ = ________ [as an improper fraction] [Giza 23]

g. $\frac{17}{3}$ = ________ [in the form of a mixed number] [Port Said 22]

h. $\frac{7}{5}$ = ________ [as a mixed number] [El-Menia 23]

i. $\frac{20}{3}$ = ________ [as a mixed number] [Cairo - Rod El Farag 23]

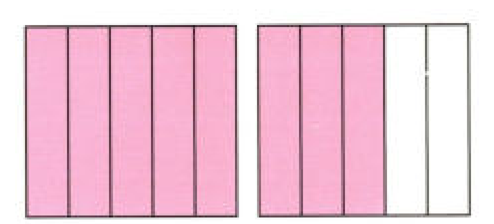
j. $\frac{17}{4}$ = ________ [as a mixed number] [El-Monofia 23]

k. $\frac{3}{3}$ = ________ , $\frac{6}{3}$ = ________ , $\frac{9}{3}$ = ________ , $\frac{12}{3}$ = ________

l. $\frac{__}{5}$ = 2 | m. $\frac{__}{7}$ = 3 | n. $\frac{__}{5}$ = 5

o. $\frac{15}{__}$ = 5 | p. $\frac{8}{__}$ = 2 | q. $\frac{9}{__}$ = 1

12. **Look at the model and answer the questions.**



a. What unit fraction is used to build this improper fraction?

____

b. How many unit fractions are colored?

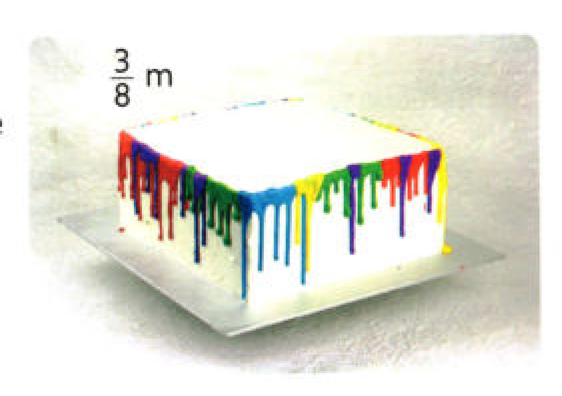
____

c. What is the improper fraction represented by this model?

____

Challenge

13. Mona baked a cake with a square top for her mom's birthday. She wanted to put a border of frosting on the top of the cake. If one side of the cake measures $\frac{3}{8}$ meter, what is the perimeter of the top of the cake?
Write the answer as both a mixed number and an improper fraction.



____

____

Multiple Choice Questions



Choose the correct answer.

1. Which of the following is a proper fraction ? [Cairo 23]

A. $\frac{3}{7}$ B. $\frac{5}{2}$ C. $1\frac{1}{3}$ D. $\frac{19}{18}$

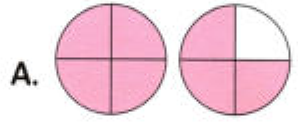
2. Which of the following is an improper fraction ? [Souhag 23]

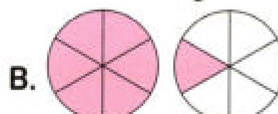
A. $\frac{4}{9}$ B. $\frac{1}{6}$ C. $1\frac{1}{5}$ D. $\frac{4}{3}$

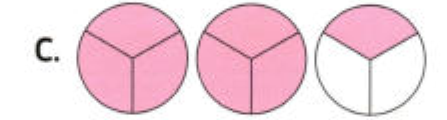
3. Which of the following is a mixed number ? [Luxor 23]

A. $\frac{1}{7}$ B. $\frac{8}{3}$ C. $2\frac{3}{5}$ D. $\frac{2}{9}$

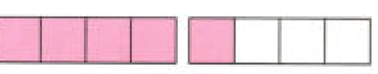
4. The correct model which represents the improper fraction $\frac{7}{6}$ is ....

A. 

B. 

C. 

D.

5. The opposite model represents ....  [Alex. 23]

A. $1\frac{1}{3}$ B. $\frac{5}{5}$ C. $\frac{4}{5}$ D. $\frac{5}{4}$

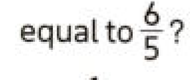
6. $4\frac{1}{2}$ = ... (as an improper fraction) [Cairo 22, El-Beheira 23]

A. $\frac{5}{2}$ B. $\frac{7}{2}$ C. $\frac{9}{2}$ D. $\frac{9}{4}$

7. $\frac{17}{6}$ is called a/an .... [Aswan 23]

A. proper fraction.
B. improper fraction.
C. mixed number.
D. unit fraction.

8. Which of the following mixed numbers is equal to $\frac{6}{5}$? [El-Beheira 23]



A. $1\frac{1}{2}$ B. $1\frac{1}{12}$ C. $1\frac{1}{5}$ D. $1\frac{1}{6}$

9. $2\frac{3}{4}$ = ... (as an improper fraction) [El-Monofia 23]

A. $\frac{13}{4}$ B. $\frac{15}{4}$ C. $\frac{11}{4}$ D. $\frac{10}{4}$

10. $\frac{20}{7}$ = ... (as a mixed number) [Cairo - Helwan 22]

A. $3\frac{1}{7}$ B. $2\frac{6}{7}$ C. $2\frac{1}{7}$ D. $1\frac{6}{7}$

Lessons 5 to 7

Adding and Subtracting Fractions
Adding Mixed Numbers
Subtracting Mixed Numbers

Learn 1 Adding and subtracting fractions

Wael recorded the distances he covered in swimming in five days.

1. How many km did Wael swim altogether during the 5 days?
2. How much further did Wael swim on Thursday than on Wednesday?

Wael's Swimming Record

Day	Distance
Monday	1 km
Tuesday	1 km
Wednesday	$\frac{3}{5}$ km
Thursday	1 km
Friday	$\frac{4}{5}$ km



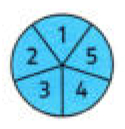
Answer:

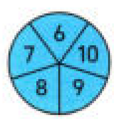
1. You can add to find the total distance he covered.

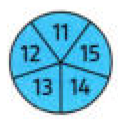
Add. $1 + 1 + 1 + \frac{3}{5} + \frac{4}{5}$

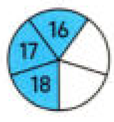
One Way (Use models)

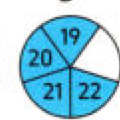
$1 + 1 + 1 + \frac{3}{5} + \frac{4}{5} = \frac{22}{5} = 4\frac{2}{5}$











(Think: $22 \div 5 = 4$ R 2)

Another Way

$(1 + 1 + 1) + (\frac{3}{5} + \frac{4}{5})$

$= 3 + \frac{7}{5}$ (Think: $7 \div 5 = 1$ R 2)

$= 3 + 1\frac{2}{5} = 4\frac{2}{5}$

$1 + 3 = 4$

MATH IDEA

To add fractions with common denominators, add the numerators and then write the sum over the common denominator

$\frac{3}{5} + \frac{4}{5} = \frac{7}{5}$

Third Way

$1 + 1 + 1 + \frac{3}{5} + \frac{4}{5}$ (Think: $1 = \frac{5}{5}$)

$\frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{3}{5} + \frac{4}{5} = \frac{22}{5} = 4\frac{2}{5}$

So, Wael swam $4\frac{2}{5}$ km during the 5 days.

Notes for parents:

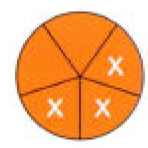
- Help your child to use models to add fractions.

2. You can subtract to find the difference.

Subtract. $1 - \frac{3}{5}$

One Way Use a model

$1 - \frac{3}{5} = \frac{2}{5}$



Another Way

$1 - \frac{3}{5} = \frac{5}{5} - \frac{3}{5} = \frac{2}{5}$

So, Wael swam $\frac{2}{5}$ km on Thursday further than on Wednesday.

Example 1

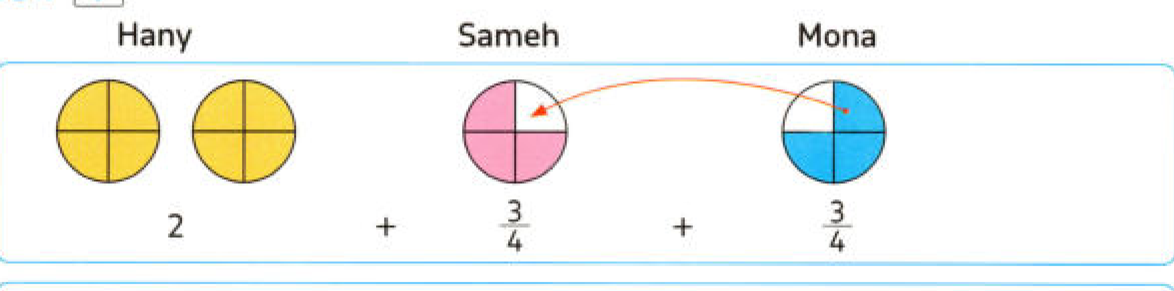
Hany has 2 pizzas, Sameh has $\frac{3}{4}$ pizza and Mona has $\frac{3}{4}$ pizza.

Use models to find the total they have.

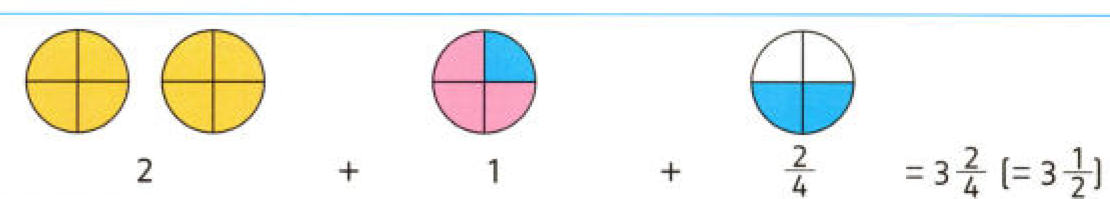




Hany Sameh Mona



$2 + \frac{3}{4} + \frac{3}{4}$



$2 + 1 + \frac{2}{4} = 3\frac{2}{4}\ (= 3\frac{1}{2})$

Example 2

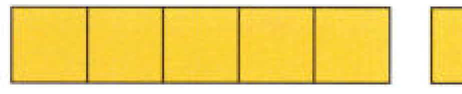
Hany walks 2 km every day. Sally walks $\frac{4}{5}$ km every day.

How much further does Hany walk than Sally ?

You may draw models to help.

Solution







$2 - \frac{4}{5} = 1\frac{1}{5}$

So, Hany walks $1\frac{1}{5}$ further than Sally.



Another Way

$2 = \frac{10}{5}$ [Because $2 \times 5 = 10$]

$2 - \frac{4}{5} = \frac{10}{5} - \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$

• Help your child to use models to subtract fractions.

Example 3

Solve each of the following problems.

a. $6 + \frac{1}{5} + \frac{2}{5} + \frac{1}{5}$

b. $\frac{4}{9} + \frac{5}{9} + 2$

c. $1 + 2 + \frac{2}{3} + \frac{2}{3}$

d. $1 - \frac{3}{4}$

e. $2 - \frac{5}{8}$

f. $1 - \frac{2}{7} - \frac{1}{7}$

Solution

a. $6 + \frac{1}{5} + \frac{2}{5} + \frac{1}{5}$

$= 6 + \frac{4}{5} = 6\frac{4}{5}$

b. $\frac{4}{9} + \frac{5}{9} + 2$

$= \frac{9}{9} + 2 = 1 + 2 = 3$

c. $1 + 2 + \frac{2}{3} + \frac{2}{3}$

$= 3 + \frac{4}{3}$ [Think: $\frac{4}{3} = 1\frac{1}{3}$]

$= 3 + 1\frac{1}{3} = 4\frac{1}{3}$

d. $1 - \frac{3}{4} = \frac{4}{4} - \frac{3}{4}$

$= \frac{1}{4}$

e. $2 = \frac{16}{8}$ [Because: $2 \times 8 = 16$]

$2 - \frac{5}{8} = \frac{16}{8} - \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}$

f. $1 - \frac{2}{7} - \frac{1}{7} = \frac{7}{7} - \frac{2}{7} - \frac{1}{7}$

$= \frac{5}{7} - \frac{1}{7} = \frac{4}{7}$

Check your understanding

Solve each of the following.

a. $1 + \frac{3}{5} + \frac{1}{5} + 2$

b. $2 + 1 + \frac{5}{6} + \frac{2}{6}$

c. $1 - \frac{2}{5}$

d. $2 - \frac{2}{9}$

Notes for parents :

- Give you child a statement as : $\frac{1}{5} + \frac{2}{5} = \frac{3}{10}$, ask him/her what is the error in this statement. Ask him/her to rewrite it in a right way.
- Help your child to understand how 2 is equal to $\frac{16}{8}$
- Help him/her to draw two circles and divide each one to eight equal parts. Ask him/her to count all parts which are 16 eighths.

Learn 2 Adding and subtracting mixed numbers with like denominators

• Adding mixed numbers with like denominator

On Friday, Samy practiced football $2\frac{2}{4}$ hours. On Saturday, he practiced $1\frac{1}{4}$ hour.
How many hours did Samy practice football in the two days ?

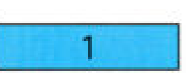


Add. $2\frac{2}{4} + 1\frac{1}{4}$

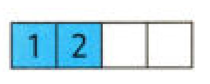
One Way [Use models]

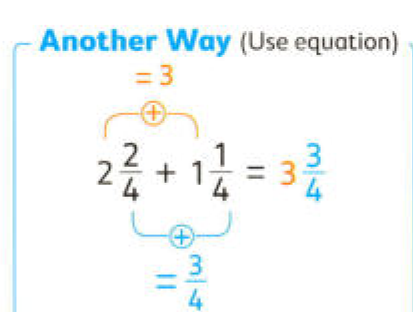
- Draw a model for each mixed number.
- Add the fractions. [Count the number of fourths colored].
- Add the whole numbers. [Count the number of whole rectangles colored].

$$\begin{array}{r} 2\frac{2}{4} \\ +\ 1\frac{1}{4} \\ \hline 3\frac{3}{4} \end{array}$$









So, Samy practiced football $3\frac{3}{4}$ hours in the two days.

• Subtracting mixed numbers with like denominators

Subtracting mixed numbers is similar to adding mixed numbers.

Bassem rode $3\frac{5}{8}$ km on Saturday. He rode $2\frac{1}{8}$ km on Monday.
How much further did he ride on Saturday ?

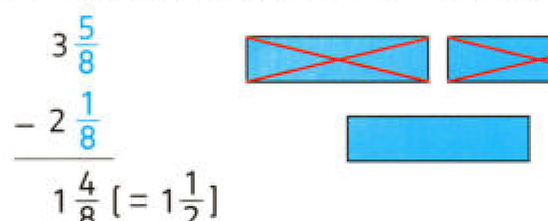


Subtract. $3\frac{5}{8} - 2\frac{1}{8}$

One Way [Use models]

- Draw a model for the first mixed number.
- Subtract the fractions. [Cross off 1 of the colored parts].
- Subtract the whole numbers. [Cross off 2 whole rectangles].

$$\begin{array}{r} 3\frac{5}{8} \\ -\ 2\frac{1}{8} \\ \hline 1\frac{4}{8}\ [= 1\frac{1}{2}] \end{array}$$



Another Way (Use equation)

= 1

$3\frac{5}{8} - 2\frac{1}{8} = 1\frac{4}{8} = 1\frac{1}{2}$

$= \frac{4}{8}$

So, Bassem rode $1\frac{4}{8}$ [$1\frac{1}{2}$] on Saturday further than on Monday.

- Help your child understand that when adding mixed numbers he/she can add whole numbers first then add fractions.
- Remind your child that he/she sometimes can subtract whole numbers first, then subtract fractions.

Example 4

Solve each of the following. You may draw models to help.

a. $2\frac{3}{8}+2\frac{2}{8}$ b. $1\frac{4}{5}+\frac{1}{5}$ c. $4\frac{3}{6}+2\frac{4}{6}$

d. $3\frac{3}{5}-2\frac{1}{5}$ e. $6-3\frac{3}{4}$ f. $5\frac{1}{3}-2\frac{2}{3}$

Solution

a.

$= 4$ (2 + 2)

$2\frac{3}{8}+2\frac{2}{8}=4\frac{5}{8}$

$=\frac{5}{8}$ ($\frac{3}{8}+\frac{2}{8}$)

b.

$1\frac{4}{5}+\frac{1}{5}=1\frac{5}{5}=2$

[Hint : $\frac{5}{5}=1$ So, $1\frac{5}{5}=1+1=2$]

c.

$4\frac{3}{6}+2\frac{4}{6}=6\frac{7}{6}$ [Rename $\frac{7}{6}$ as $1\frac{1}{6}$]

$=6+1\frac{1}{6}=7\frac{1}{6}$

d.

$= 1$ (3 − 2)

$3\frac{3}{5}-2\frac{1}{5}=1\frac{2}{5}$

$=\frac{2}{5}$ ($\frac{3}{5}-\frac{1}{5}$)

e.

$6-3\frac{3}{4}$ [Rename 6 as $5\frac{4}{4}$]

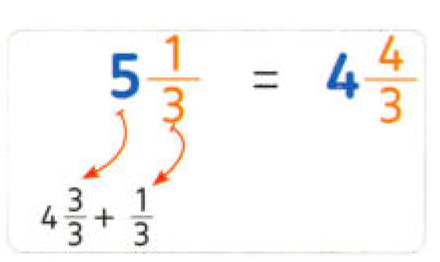
$=5\frac{4}{4}-3\frac{3}{4}=2\frac{1}{4}$

f.

$5\frac{1}{3}-2\frac{2}{3}$ The numerator 1 is less than the numerator 2, so you can't subtract

[Rename 5 as $4\frac{3}{3}$, so $5\frac{1}{3}=4\frac{4}{3}$]

$5\frac{1}{3}-2\frac{2}{3}=4\frac{4}{3}-2\frac{2}{3}=2\frac{2}{3}$



Notes for parents :

- Choose any problem in this page, ask your child how he/she can solve it.
- Help your child to rename the mixed number $6\frac{1}{4}$

Example 5

Complete each of the following.

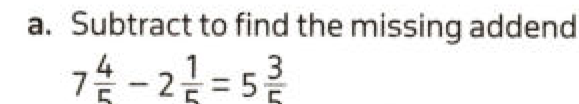
a. $2\frac{1}{5} + ____ = 7\frac{4}{5}$

b. $____ + 1\frac{3}{4} = 3\frac{1}{4}$

c. $7\frac{2}{3} - ____ = 5\frac{1}{3}$

d. $____ - 2\frac{3}{7} = 3\frac{2}{7}$

Solution



a. Subtract to find the missing addend

$7\frac{4}{5} - 2\frac{1}{5} = 5\frac{3}{5}$

b. Subtract to find the missing addend

$3\frac{1}{4} - 1\frac{3}{4} = 2\frac{5}{4} - 1\frac{3}{4} = 1\frac{2}{4}$

$2\frac{4}{4} + \frac{1}{4} = 2\frac{5}{4}$

c. Subtract to find the missing subtrahend

$7\frac{2}{3} - 5\frac{1}{3} = 2\frac{1}{3}$

d. Add to find the missing minuend

$3\frac{2}{7} + 2\frac{3}{7} = 5\frac{5}{7}$

• Using a number line to add and subtract mixed numbers with like denominators

You can use a number line to add or subtract mixed numbers as in the following example.

Example 6

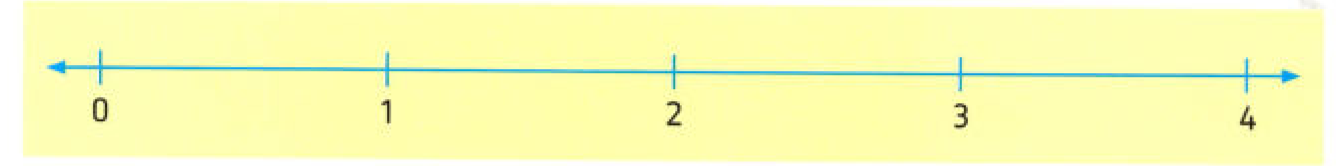
Use a number line to add or subtract.

a. $1\frac{1}{5} + 2\frac{2}{5}$

b. $3\frac{3}{4} - 1\frac{1}{4}$

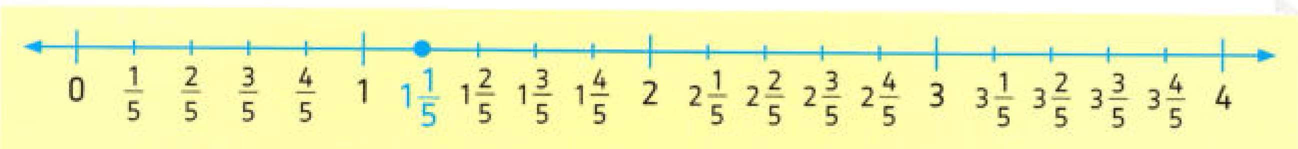
Solution 

a. • Draw a number line



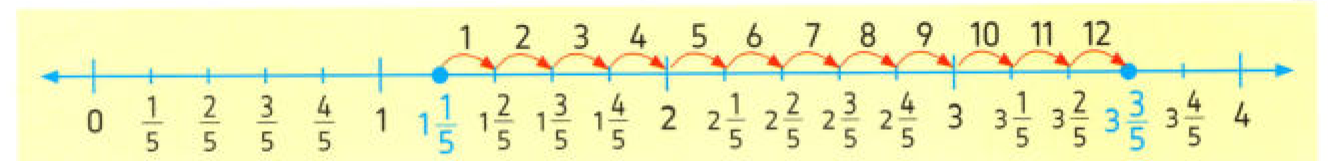
• Divide the distance between each two numbers into 5 equal parts, each part represents $\frac{1}{5}$

Locate $1\frac{1}{5}$ on the number line.



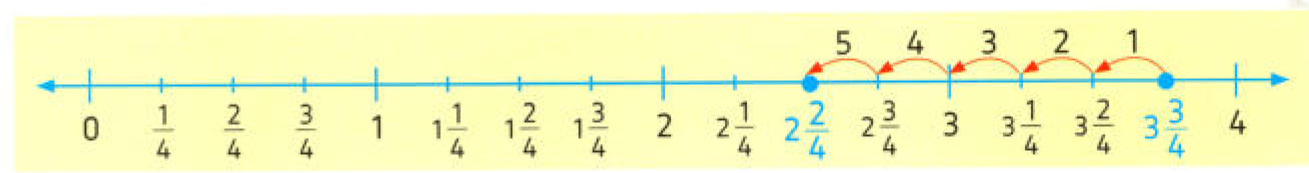
• Remind your child that he/she need to divide the distance between the 2 numbers on the number line into equal parts. The number of these parts equal the denominator when dividing the distance into 5 equal parts, he/she need to draw 4 small dashes.

- Rename $2\frac{2}{5}$ as $\frac{12}{5}$. Start at $1\frac{1}{5}$
  Count forward 12 times. You will reach $3\frac{3}{5}$



$$1\frac{1}{5}+2\frac{2}{5}=3\frac{3}{5}$$

b. Divide the distance between each two numbers into 4 equal parts, each part represents $\frac{1}{4}$
Rename $1\frac{1}{4}$ as $\frac{5}{4}$. Start at $3\frac{3}{4}$. Count backward 5 times to subtract. You will reach $2\frac{2}{4}$



$$3\frac{3}{4}-1\frac{1}{4}=2\frac{2}{4}$$

Check your understanding

Model and record the sum or the difference.

a. $5\frac{1}{6}+2\frac{4}{6}$

b. $5\frac{3}{8}+1\frac{5}{8}$

c. $2\frac{3}{4}+3\frac{3}{4}$

d. $3\frac{5}{6}-2\frac{1}{6}$

e. $2-1\frac{1}{3}$

f. $5\frac{1}{5}-2\frac{3}{5}$

Notes for parents :

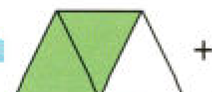
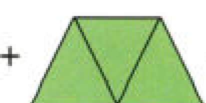
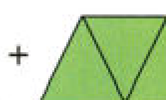
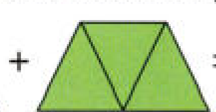
- Ask your child to choose any problem in this page and solve it in more than one way.

Exercise 3
on lessons 5 to 7

- Adding and Subtracting Fractions
- Adding Mixed Numbers
- Subtracting Mixed Numbers

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | 📖 From the school book

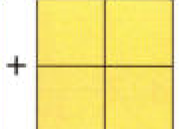
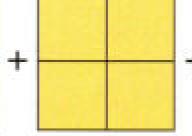
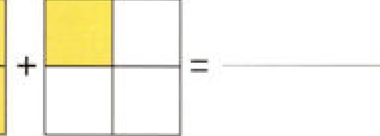
1. Rewrite the problem with whole numbers and proper fractions, then solve the problems.

a. 📖  +  +  +  +  = ______

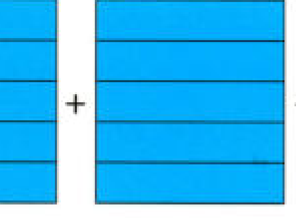
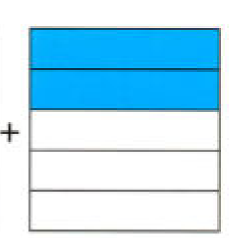
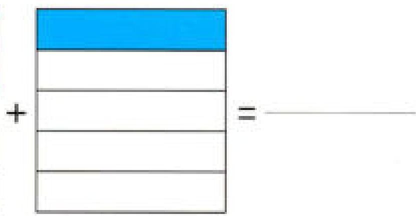
______ + ______ + ______ + ______ + ______ = ______

b. ( ) + ( ) + ( ) + ( ) = ______

______ + ______ + ______ + ______ = ______

c.  +  +  = ______

______ + ______ + ______ + ______ + ______ = ______

d.  +  +  +  = ______

______ + ______ + ______ + ______ = ______

2. Solve the following problems using numbers.

a. 📖 $\frac{3}{5} + \frac{2}{5} =$ ______

b. 📖 $\frac{4}{9} + \frac{1}{9} + \frac{2}{9} + 4 =$ ______

c. 📖 $\frac{10}{12} + \frac{1}{12} + 3 + 2 =$ ______

d. $1 + 1 + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ ______

e. $3 + 4 + \frac{1}{2} =$ ______

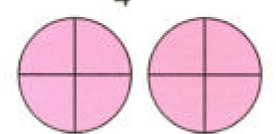
f. 📖 $2 + 2 + \frac{3}{5} + \frac{3}{5} =$ ______

g. 📖 $4 + \frac{4}{8} + 2 + \frac{5}{8} =$ ______

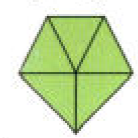
h. 📖 $\frac{3}{6} + 5 + \frac{5}{6} + 2 =$ ______

3. Use models to solve the following problems.

a.  $2 - \frac{1}{4} =$ ....



b. $1 - \frac{2}{5} - \frac{1}{5} =$ ....



c. $1 - \frac{2}{5} =$ .... [Souhag 22]

d. $1 - \frac{2}{8} =$ ....

e. $2 - \frac{4}{5} =$ ....

f. $2 - \frac{1}{2} =$ ....

g. $2 - \frac{2}{3} =$ ....

h. $3 - \frac{1}{3} =$ ....

i. $4 - \frac{5}{6} =$ ....

4. Solve the following problems. Show your steps.

a. $\frac{5}{12} + \frac{2}{12} + \frac{6}{12} =$ .... [New Cairo 22]

b. $1 + 2 + \frac{1}{5} + \frac{3}{5} + \frac{4}{5} =$ ....

c. $1 - \frac{3}{6} - \frac{1}{6} =$ ....

d. $2 - \frac{1}{3} - \frac{1}{3} =$ ....

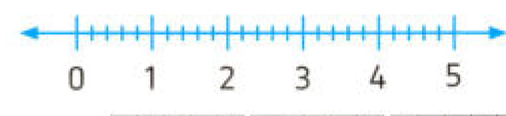
e. $1 + \frac{1}{7} + 2 + \frac{3}{7} =$ ....

f. $3 - \frac{2}{3} - \frac{1}{3} =$ ....

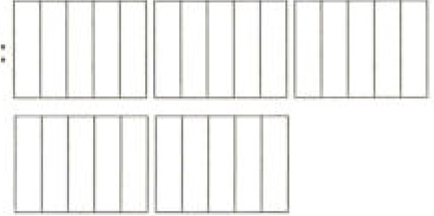
5. Add or subtract mixed numbers. Solve each problem using a number line, a model and an equation. For each model, color the first fraction one color and use a different color for the second fraction.

a. $2\frac{1}{5} + 1\frac{2}{5}$

Number line :



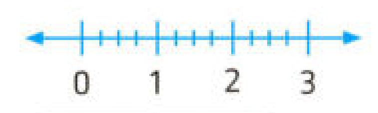
Model :



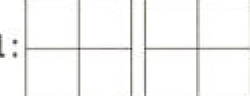
Equation : ....

b. $1\frac{1}{4} + \frac{3}{4}$

Number line :



Model :



Equation : ....

c. $2\frac{1}{6}+1\frac{5}{6}$

Number line :

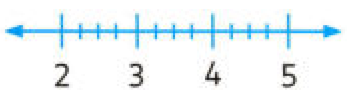


Model :

Equation : ....

d. $4\frac{3}{4}-2\frac{1}{4}$

Number line :

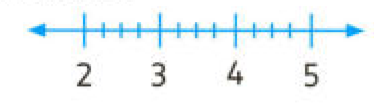


Model :

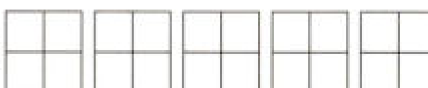
Equation : ....

e. $5-2\frac{1}{4}$

Number line :



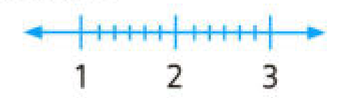
Model :



Equation : ....

f. $3-1\frac{1}{6}$

Number line :

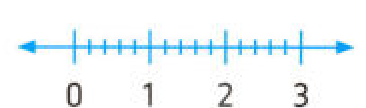


Model :

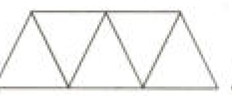
Equation : ....

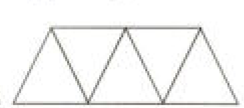
g. $2\frac{1}{5}-1\frac{2}{5}$

Number line :



Model :





Equation : ....

6. Solve the following problems using your favorite strategy. (Explain your steps).

a. $2\frac{4}{9}+1\frac{2}{9}$

b. $2\frac{3}{5}+1\frac{4}{5}$

c. $3\frac{2}{5}+1\frac{1}{5}$ [El-Beheira 23]

d. $1+1\frac{1}{6}$ [Aswan 22]

e. $5\frac{5}{6}+2\frac{1}{6}$ [Souhag 22]

f. $2\frac{1}{7}+3\frac{3}{7}$ [Cairo 23]

g. $3\frac{2}{5}-2\frac{1}{5}$

h. $2\frac{6}{9}-1\frac{2}{9}$ [El-Monofia 22]

i. $3\frac{4}{7}-1\frac{3}{7}$ [El-Beheira 23]

j. $3-2\frac{1}{8}$

k. $3\frac{2}{5}-1\frac{4}{5}$

l. $2+1\frac{1}{7}+3\frac{3}{7}$ [Souhag 23]

7. Complete.

a. $7\frac{7}{9} - 4\frac{4}{9} =$ .... [Souhag 23]

b. $3\frac{2}{5} - 2\frac{1}{5} =$ .... [Kafr El-Sheikh 23]

c. $1 - \frac{2}{3} =$ .... [Alex. 23]

d. $3 - \frac{1}{10} =$ .... [El-Menia 23]

e. $5 - 2\frac{1}{3} =$ .... [Giza 23]

f. $2\frac{1}{7} + 3\frac{3}{7} =$ .... [Giza 23, Cairo 23]

g. $3\frac{2}{5} + 2\frac{3}{5} =$ .... [Kafr El-Sheikh 23]

h. $6 + \frac{2}{5} + 2 + \frac{3}{5} =$ .... [Kafr El-Sheikh 23]

i. $1 - \frac{1}{7} - \frac{2}{7} =$ .... [Ismailia 23]

j. $3\frac{2}{5} +$ .... $= 4\frac{3}{5}$

k. $4\frac{5}{6} +$ .... $= 6\frac{5}{6}$ [El-Menia 23]

l. $7\frac{5}{9} -$ .... $= 3\frac{1}{9}$

m. .... $- 2\frac{1}{4} = 3\frac{2}{4}$

n. .... $- 3\frac{1}{3} = 1\frac{1}{3}$

o. $4\frac{4}{5} -$ .... $= 1\frac{1}{5}$

p. .... $- 1\frac{5}{7} = 2\frac{3}{7}$

q. .... $+ 1\frac{1}{7} = 3$

r. $2\frac{3}{4} +$ .... $= 4\frac{1}{4}$

s. $5 -$ .... $= 3\frac{1}{4}$

Story Problems

8. Ahmed has a number of seeds. On Friday he planted $\frac{3}{9}$ of them, and he planted $\frac{5}{9}$ of them on Saturday. What fraction represents the seeds that Ahmed planted in both of the two days? [El-Beheira 23]

....

9. Salma went to market and bought $3\frac{1}{8}$ kg of banana and $1\frac{5}{8}$ kg of apple. How many kilograms did Salma buy? [Aswan 23]

....

10. Seif studied Math for $1\frac{1}{4}$ hour and science for $\frac{3}{4}$ hour. How many hours did Seif study in all? [El-Menia 23]

....

11. Manar is making a drink that requires $\frac{5}{8}$ liter of milk, and she has only $\frac{2}{8}$ liter of milk. How much milk does Manar need more to make the drink? [Giza 22]

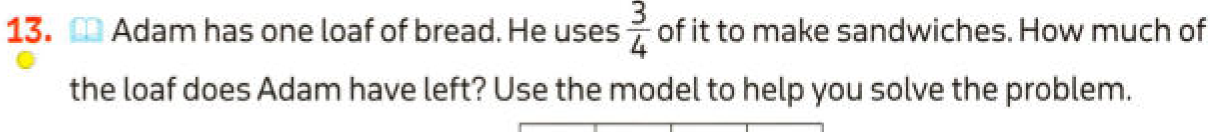
....

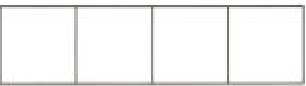


12. Waleed ate $2\frac{3}{8}$ of cakes and Ali ate $1\frac{1}{8}$ of cakes of the same size, what is the difference between what Waleed ate and what Ali ate? [El-Monofia 23]

---

13. Adam has one loaf of bread. He uses $\frac{3}{4}$ of it to make sandwiches. How much of the loaf does Adam have left? Use the model to help you solve the problem.





---

14. Mona has $24\frac{1}{2}$ pounds, she bought a doll for $22\frac{1}{2}$ pounds. How much money left with her? [Giza 23]

---

15. Hady has $3\frac{1}{4}$ cookies, he gave $2\frac{3}{4}$ to his sister. How many cookies does he have left?

---

16. Ezz bakes a cake for his grandmother. If he has $2\frac{1}{4}$ pans of butter, and the recipe needs $1\frac{2}{4}$ pans of butter. How much butter left will he have?



---

17. Nadia is making falafel for a party. Her recipe calls for $\frac{1}{2}$ teaspoon sodium bicarbonate. The recipe makes enough for 10 people. Nadia is having 40 guests. In order to feed all her guests, she wants to quadruple her recipe. How many teaspoons of sodium bicarbonate will she use?



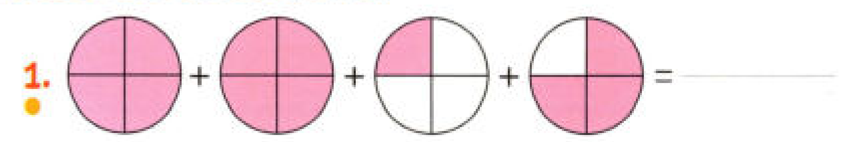
Challenge

18. Write and solve your own addition story problem. You can use one of the equations provided to create your own.

$2\frac{2}{9}+3\frac{5}{9}$ | $1\frac{4}{5}+2\frac{1}{5}$ | $3\frac{3}{10}+1\frac{9}{10}$

Multiple Choice Questions

Choose the correct answer.

1.  = ... [Kafr El-Sheikh 23]

   A. $2\frac{1}{4}$ B. $2\frac{1}{2}$ C. $2\frac{3}{4}$ D. 3

2. $\frac{5}{9}+\frac{4}{9}=$ .... [Port Said 23, Qena 22]

   A. $\frac{1}{9}$ B. $\frac{9}{18}$ C. 1 D. $\frac{20}{81}$

3. $4+\frac{7}{11}+2+\frac{1}{11}=$ .... [Assiut 22]

   A. $6\frac{8}{11}$ B. $6\frac{8}{22}$ C. $2\frac{6}{11}$ D. $7\frac{8}{11}$

4. $1\frac{1}{4}+\frac{3}{4}=$ .... [El-Menia 22]

   A. $2\frac{1}{4}$ B. 2 [El-Beheira 23] C. 4 D. $2\frac{3}{4}$

5. $\frac{1}{5}+\frac{3}{5}+\frac{\cdots}{5}=1$ [El-Menia 23]

   A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. 1

6. $4+\frac{1}{3}=$ .... [El-Menia 23]

   A. $4\frac{1}{3}$ B. $\frac{4}{3}$ C. $\frac{12}{3}$ D. $5\frac{1}{3}$

7. $3+\frac{2}{5}+1+\frac{1}{5}=$ .... [Ismailia 23]

   A. $2\frac{3}{5}$ B. $4\frac{3}{5}$ C. $2\frac{1}{5}$ D. $\frac{7}{5}$

8. $\frac{6}{10}-\frac{2}{10}=$ .... [Giza 23]

   A. $\frac{8}{10}$ B. $\frac{4}{10}$ C. $\frac{4}{20}$ D. $\frac{8}{20}$

9. $3\frac{5}{8}-2\frac{1}{8}=$ .... [Assiut 23]

   A. $2\frac{6}{8}$ B. $2\frac{4}{8}$ C. $1\frac{6}{8}$ D. $1\frac{4}{8}$

10. $1-\frac{3}{5}=$ .... [El-Beheira 23]

    A. $\frac{2}{5}$ B. $\frac{3}{5}$ C. $\frac{2}{4}$ D. $\frac{2}{10}$

11. $2-\frac{5}{7}=$ .... [Cairo - Rod El Farag 23]

    A. $1\frac{2}{7}$ B. 1 C. $\frac{10}{7}$ D. $1\frac{5}{7}$

12. $6-3\frac{1}{4}=$ .... [Alex. 23]

    A. $3\frac{1}{4}$ B. $9\frac{1}{4}$ C. $2\frac{3}{4}$ D. $2\frac{1}{4}$

13. $\frac{1}{5}+\frac{2}{5}-\frac{2}{5}=$ .... [Port Said 23]

    A. $\frac{2}{5}$ B. $\frac{1}{5}$ C. 1 D. $\frac{6}{5}$

Concept 2

Comparing Fractions

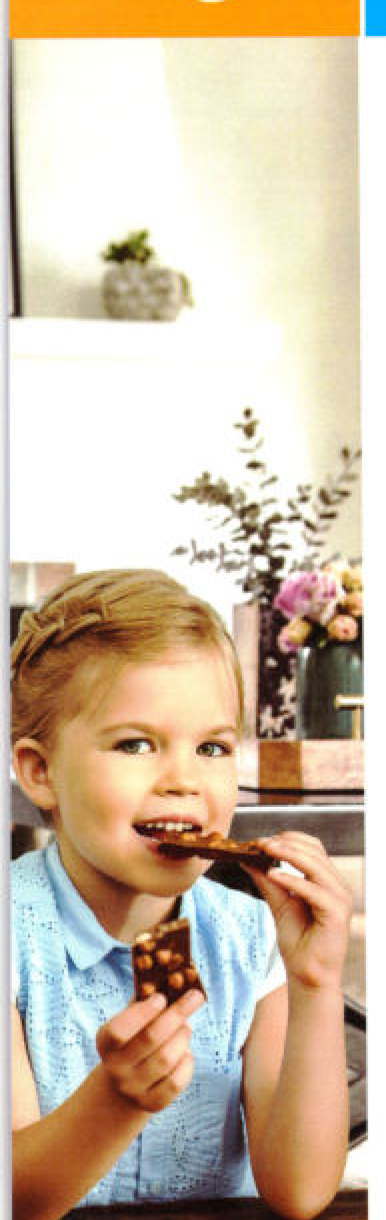
Did you know ?!

Earth, our home planet, is called the "Blue Planet". About $\frac{7}{10}$ of the Earth's surface, is covered with water, while $\frac{3}{10}$ only of its surface is land.

Lesson No.	Lesson Name	Learning Objectives
Lesson 8	Comparing Fractions with Like Denominators or Numerators	• Students will compare and order fractions with like denominators. • Students will compare and order fractions with like numerators.
Lesson 9	Same Fraction, Different Ways	• Students will use visual models to generate equivalent fractions. • Students will explain what makes two fractions equivalent.
Lessons 10 & 11	Benchmark Fractions	• Students will identify benchmark fractions. • Students will generate fractions equivalent to benchmark fractions.
	Applications on the Benchmark Fractions	• Students will compare fractions to a benchmark fraction.

Lesson 8

Comparing Fractions with Like Denominators or Numerators



Learn 1 Compare and order fractions with like denominators

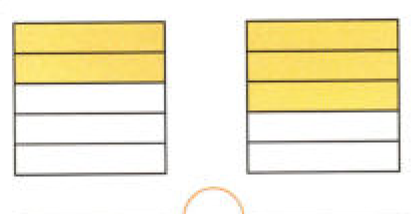
Sara and Laila had two identical bars of chocolate.

Sara ate $\frac{2}{5}$ of her bar. Laila ate $\frac{4}{5}$ of her bar.



Who ate the greater part ?

Model $\frac{2}{5}$ and $\frac{4}{5}$ (The colored parts show what each one ate)



By comparing the colored parts, $2 < 4$

So, $\frac{2}{5} < \frac{4}{5}$ **So, Laila ate the greater part.**

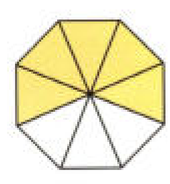
ERROR ALERT

When you compare two fractions, make sure the wholes are the same size.

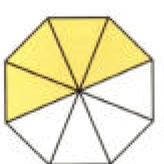
Example 1

Write the fractions which represent the colored parts, then compare fractions using "< , = or >".

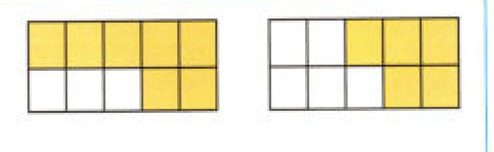
a.



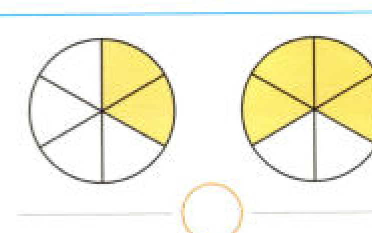
b.



c.



d.



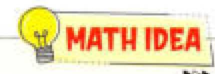
Solution



a. $\frac{2}{5} < \frac{3}{5}$ | b. $\frac{5}{8} > \frac{4}{8}$ | c. $\frac{7}{10} > \frac{5}{10}$ | d. $\frac{2}{6} < \frac{4}{6}$

Notes for parents :

- Ask your child to draw a model to compare $\frac{3}{4}$ and $\frac{2}{4}$.



When you compare fractions with **like denominators**, only **compare the numerators**.
The one with the greater numerator is the greater.

For example :

$\frac{5}{7} > \frac{3}{7}$ because they have the same denominator "7" and 5 > 3

Example 2

Compare the following fractions using "> , < or =".

a. $\frac{1}{4}$ ◯ $\frac{3}{4}$ | b. $\frac{5}{7}$ ◯ $\frac{2}{7}$ | c. $\frac{3}{8}$ ◯ $\frac{5}{8}$ | d. $\frac{3}{12}$ ◯ $\frac{6}{12}$

Solution

a. < (Because 1 < 3)

b. > (Because 5 > 2)

c. < (Because 3 < 5)

d. < (Because 3 < 6)

Example 3

Write $\frac{7}{9}$, $\frac{1}{9}$, $\frac{6}{9}$, $\frac{2}{9}$ and $\frac{4}{9}$ in an ascending order.

Solution

The order is : $\frac{1}{9}$, $\frac{2}{9}$, $\frac{4}{9}$, $\frac{6}{9}$, $\frac{7}{9}$

Because the fractions have the same denominator "9"
and 1 < 2 < 4 < 6 < 7

Remember

Ascending order is ordering numbers from least to greatest.

Ascending order

Check your understanding

1. Compare. Write "> , < or =" for each ☐.

a. $\frac{3}{6}$ ☐ $\frac{5}{6}$ | b. $\frac{1}{10}$ ☐ $\frac{7}{10}$ | c. $\frac{7}{12}$ ☐ $\frac{5}{12}$

2. Write the fractions in an ascending order.

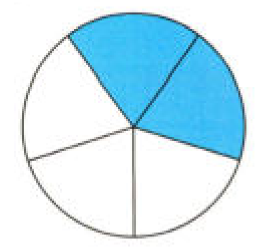
a. $\frac{2}{7}$, $\frac{5}{7}$, $\frac{1}{7}$ and $\frac{4}{7}$ The order is : ....

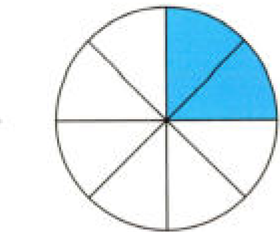
b. $\frac{9}{12}$, $\frac{1}{12}$, $\frac{6}{12}$, $\frac{8}{12}$ and $\frac{3}{12}$ The order is : ....

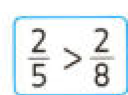
• Ask your child to compare numerators to determine which fraction is greater when comparing fractions with like denominators.

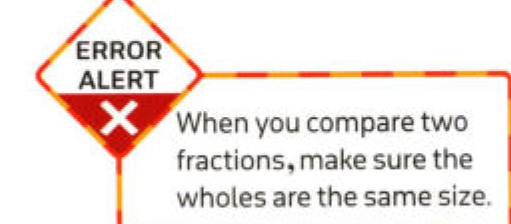
Learn 2 Compare and order fractions with like numerators

How can you compare $\frac{2}{5}$ and $\frac{2}{8}$?

$\frac{2}{5}$ 

$\frac{2}{8}$ 

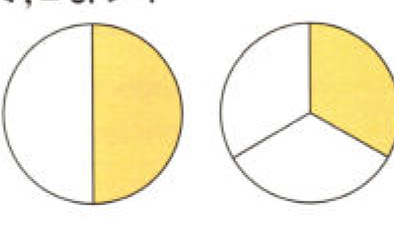
By comparing the colored parts, you get $\frac{2}{5} > \frac{2}{8}$ 



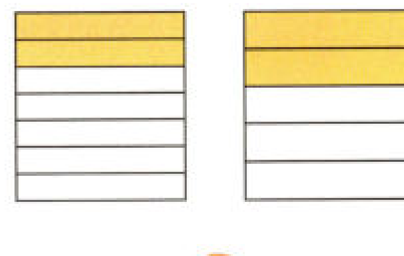
Example 4

Write the fractions which represent the colored parts , then compare fractions using "< , = or >".

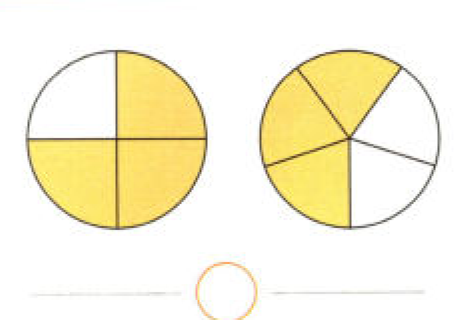
a.



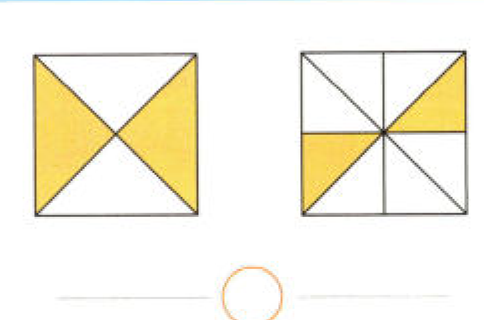
b.



c.



d.

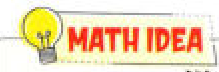


Solution

a. $\frac{1}{2}$ (>) $\frac{1}{3}$ | b. $\frac{2}{7}$ (<) $\frac{2}{5}$ | c. $\frac{3}{4}$ (>) $\frac{3}{5}$ | d. $\frac{2}{4}$ (>) $\frac{2}{8}$

Notes for parents :

- Ask your child to draw a model to compare $\frac{3}{4}$ and $\frac{3}{6}$



When you compare fractions with **like numerators**, only **compare the denominators**. The one with the greater denominator is the smaller.

For example :

$\frac{2}{5} < \frac{2}{3}$ because they have the same numerator "2" and 5 > 3

Example 5

Compare the following fractions using "< , > or =".

a. $\frac{1}{7}$ ◯ $\frac{1}{9}$ | b. $\frac{4}{12}$ ◯ $\frac{4}{6}$ | c. $\frac{3}{5}$ ◯ $\frac{3}{10}$ | d. $\frac{5}{11}$ ◯ $\frac{5}{5}$

Solution

a. > [Because 9 > 7]

b. < [Because 12 > 6]

c. > [Because 10 > 5]

d. < [Because 11 > 5]

Example 6

Write $\frac{3}{12}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{5}$ and $\frac{3}{10}$ in a descending order.

Solution

The order is : $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$, $\frac{3}{12}$

Because the fractions have the same numerator "3" and 5 < 7 < 9 < 10 < 12

Remember

Descending order is ordering numbers from greatest to least.





Check your understanding

1. **Compare. Write ">, < or =" for each ☐**

a. $\frac{3}{6}$ ☐ $\frac{3}{7}$ | b. $\frac{5}{12}$ ☐ $\frac{5}{10}$ | c. $\frac{7}{13}$ ☐ $\frac{7}{9}$

2. **Write the fractions in a descending order.**

a. $\frac{2}{8}$, $\frac{2}{10}$, $\frac{2}{4}$ and $\frac{2}{5}$ The order is : ....

b. $\frac{4}{7}$, $\frac{4}{11}$, $\frac{4}{5}$, $\frac{4}{8}$ and $\frac{4}{6}$ The order is : ....

• Ask your child to compare denominators to determine which fraction is greater when comparing fractions with like numerators.

Exercise 4 on lesson 8

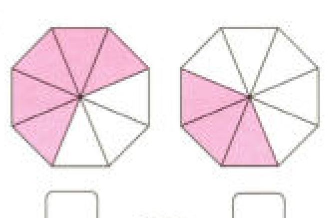
Comparing Fractions with Like Denominators or Numerators

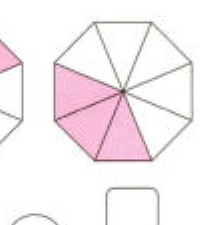


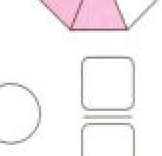
● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Write the fractions which represent the colored parts, then compare each pair of fractions using the symbols "> , < or =".

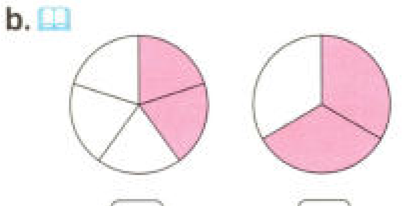
a.





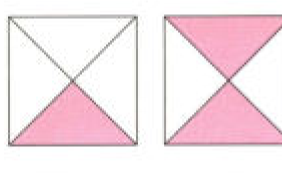


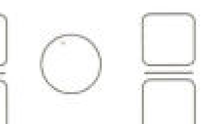
b.



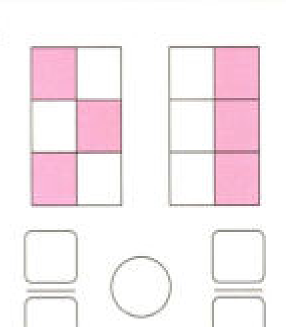


c.

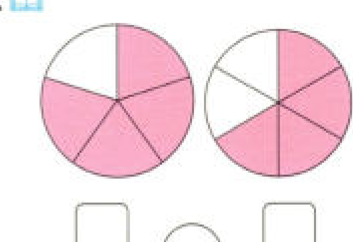




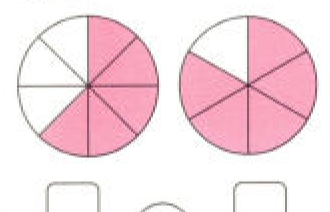
d.



e.

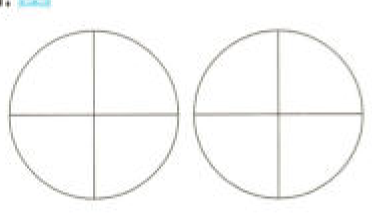


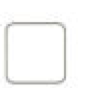
f.



2. Shade each shape to show the given fraction, then compare the fractions using the symbols "> , < or =".

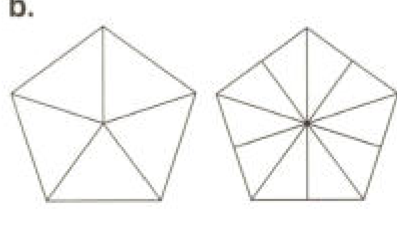
a.

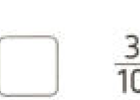




$\frac{1}{4}$ ☐ $\frac{3}{4}$

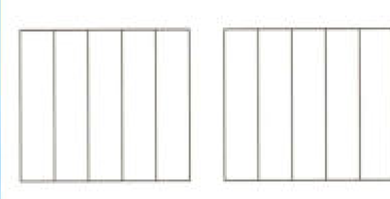
b.





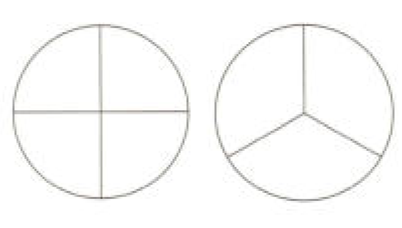
$\frac{3}{5}$ ☐ $\frac{3}{10}$

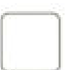
c.



$\frac{3}{5}$ ☐ $\frac{5}{5}$

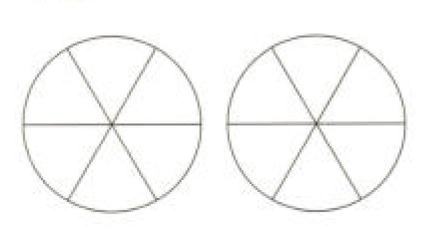
d.

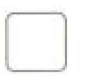




$\frac{2}{4}$ ☐ $\frac{2}{3}$

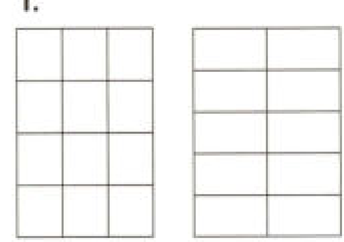
e.

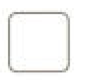




$\frac{5}{6}$ ☐ $\frac{4}{6}$

f.





$\frac{6}{12}$ ☐ $\frac{6}{10}$

3. Compare. Write "> , < or =".

a. $\frac{2}{3}$ ☐ $\frac{1}{3}$

b. $\frac{5}{12}$ ☐ $\frac{6}{12}$

c. $\frac{3}{6}$ ☐ $\frac{3}{4}$

d. $\frac{2}{9}$ ☐ $\frac{2}{7}$

e. $\frac{4}{7}$ ☐ $\frac{5}{7}$

f. $\frac{4}{8}$ ☐ $\frac{4}{5}$

g. $\frac{3}{8}$ ☐ $\frac{5}{8}$

h. $\frac{1}{4}$ ☐ $\frac{3}{4}$

i. $\frac{4}{7}$ ☐ $\frac{4}{10}$

j. $\frac{8}{8}$ ☐ $\frac{6}{8}$

k. $\frac{5}{6}$ ☐ $\frac{5}{8}$

l. $\frac{6}{6}$ ☐ $\frac{6}{7}$

4. Circle the correct fraction.

a. $\frac{2}{4} >$ ☐ [$\frac{2}{3}$ or $\frac{2}{5}$ or $\frac{2}{2}$]

b. $\frac{1}{5} <$ ☐ [$\frac{1}{6}$ or $\frac{1}{8}$ or $\frac{1}{4}$]

c. ☐ $< \frac{3}{7}$ [$\frac{3}{8}$ or $\frac{3}{3}$ or $\frac{3}{6}$]

d. $\frac{4}{6} >$ ☐ [$\frac{4}{5}$ or $\frac{4}{4}$ or $\frac{4}{9}$]

e. $\frac{5}{10} <$ ☐ [$\frac{5}{8}$ or $\frac{5}{11}$ or $\frac{5}{15}$]

f. ☐ $> \frac{3}{5}$ [$\frac{3}{7}$ or $\frac{3}{3}$ or $\frac{3}{9}$]

g. $\frac{3}{5} <$ ☐ [$\frac{1}{5}$ or $\frac{2}{5}$ or $\frac{4}{5}$]

h. $\frac{7}{10} <$ ☐ [$\frac{8}{10}$ or $\frac{5}{10}$ or $\frac{6}{10}$]

5. Order the following fractions in an ascending order.

a. $\frac{4}{11}$, $\frac{1}{11}$, $\frac{9}{11}$, $\frac{6}{11}$ [El-Monofia 23]

b. $\frac{2}{7}$, $\frac{4}{7}$, $\frac{8}{7}$, $\frac{3}{7}$ [Alex. 23]

c. $\frac{6}{8}$, $\frac{2}{8}$, $\frac{5}{8}$, $\frac{3}{8}$, $\frac{7}{8}$, $\frac{1}{8}$, $\frac{8}{8}$

d. $\frac{2}{5}$, $\frac{2}{9}$, $\frac{2}{3}$, $\frac{2}{10}$, $\frac{2}{4}$ [El-Beheira 23]

e. $\frac{3}{5}$, $\frac{3}{8}$, $\frac{3}{6}$, $\frac{3}{12}$ [Port Said 23]

f. $\frac{3}{5}$, $\frac{3}{8}$, $\frac{3}{3}$, $\frac{3}{6}$, $\frac{3}{12}$

g. $\frac{5}{3}$, $\frac{1}{3}$, 1 [Giza 23]

6. Order the following fractions in a descending order.

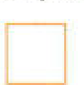
a. $\frac{3}{7}$, $\frac{1}{7}$, $\frac{5}{7}$, $\frac{4}{7}$

b. $\frac{1}{7}$, $\frac{1}{5}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{10}$

c. $\frac{2}{11}$, $\frac{5}{11}$, $\frac{7}{11}$, $\frac{4}{11}$, $\frac{3}{11}$

d. $\frac{5}{11}$, $\frac{5}{6}$, $\frac{5}{7}$, $\frac{5}{9}$, $\frac{5}{5}$

7. Compare the fractions.

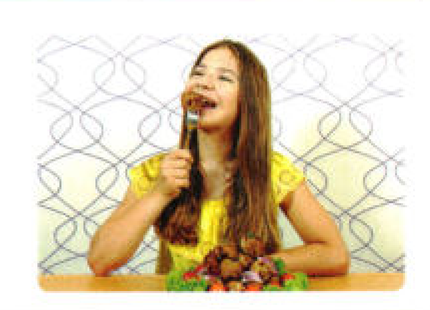
a.  $\frac{4}{7}$  ☐ $\frac{4}{3}$

b.  $\frac{5}{10}$ ☐ $\frac{5}{2}$

c. Do the improper fractions follow the same rule you wrote about how to compare fractions with common numerators? How do you know? Use a model to explain your thinking.

8. Each of Othman and Ramzy has a bar of sweet of the same size. If Othman ate $\frac{4}{6}$ of his bar and Ramzy ate $\frac{4}{8}$ of his bar. Who ate more? [Cairo - Khalifa and Mokattem 22]

9. Ganna ate $\frac{3}{6}$ of her kofta and kabab plate. Lamia ate $\frac{3}{4}$ of her plate. If the two plates of kofta and kabab with the same size, who ate more? Use model to explain your thinking.



10. **Fractional Candy Bars:**

Would you rather have $\frac{5}{12}$ of a candy bar or $\frac{6}{12}$?

Use numbers, pictures, or words to explain your thinking.



Multiple Choice Questions

Choose the correct answer.

1. Which of the following fractions is the least?

A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. $\frac{4}{5}$

2. Which of the following fractions is the greatest?

A. $\frac{3}{5}$ B. $\frac{3}{6}$ C. $\frac{3}{7}$ D. $\frac{3}{8}$

3. $\frac{2}{7}$ ◯ $\frac{5}{7}$ [Kafr El-Sheikh 23]

A. > B. < C. =

4. $\frac{3}{5}$ ◯ $\frac{3}{7}$ [Souhag 23]

A. < B. = C. >

5. $\frac{1}{4} < \frac{1}{\ldots}$ [El-Fayoum 22]

A. 8 B. 7

C. 5 D. 3

6. Which relation is correct? [El-Menia 23, Suez - South 22]

A. $\frac{7}{12} > \frac{7}{9}$ B. $\frac{7}{8} < \frac{7}{10}$

C. $\frac{7}{13} < \frac{7}{11}$ D. $\frac{7}{15} > \frac{7}{9}$

7. Which of the following sentences is NOT true?

A. $\frac{2}{5} > \frac{4}{5}$ B. $\frac{1}{6} < \frac{3}{6}$

C. $\frac{6}{7} < \frac{7}{7}$ D. $\frac{5}{8} > \frac{3}{8}$

8. Which relation is correct? [Cairo - El Sayda Zainab 22]

A. $\frac{3}{7} > \frac{5}{7}$ B. $\frac{6}{7} < \frac{4}{7}$

C. $\frac{1}{7} > \frac{3}{7}$ D. $\frac{1}{7} < \frac{5}{7}$

9. $\frac{4}{9} >$ .... [Aswan 23]

A. $\frac{7}{9}$ B. $\frac{5}{9}$

C. $\frac{1}{9}$ D. $\frac{8}{9}$

10. $\frac{2}{9} <$ .... [El-Beheira 23]

A. $\frac{2}{7}$ B. $\frac{2}{10}$

C. $\frac{2}{11}$ D. $\frac{2}{12}$

11. Which choice shows the fractions in an ascending order?

A. $\frac{2}{12}, \frac{4}{12}, \frac{6}{12}, \frac{5}{12}, \frac{8}{12}$ B. $\frac{2}{12}, \frac{4}{12}, \frac{5}{12}, \frac{6}{12}, \frac{8}{12}$

C. $\frac{2}{12}, \frac{4}{12}, \frac{6}{12}, \frac{8}{12}, \frac{5}{12}$ D. $\frac{8}{12}, \frac{6}{12}, \frac{5}{12}, \frac{4}{12}, \frac{2}{12}$

12. Which choice shows the fractions in a descending order?

A. $\frac{3}{10}, \frac{3}{9}, \frac{3}{7}, \frac{3}{5}, \frac{3}{3}$ B. $\frac{3}{5}, \frac{3}{7}, \frac{3}{9}, \frac{3}{10}, \frac{3}{3}$

C. $\frac{3}{3}, \frac{3}{5}, \frac{3}{7}, \frac{3}{9}, \frac{3}{10}$ D. $\frac{3}{3}, \frac{3}{10}, \frac{3}{9}, \frac{3}{7}, \frac{3}{5}$

Lesson 9

Same Fraction, Different Ways

Learn ① Equivalent fractions

- Fractions that name the same amount are called equivalent fractions.

Problem

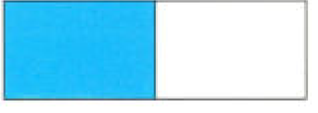
Bassem and Mina each had 1 liter of juice.

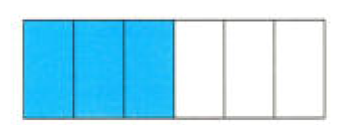
Bassem drank $\frac{1}{2}$ of his liter.

Mina drank $\frac{3}{6}$ of his liter.




Did Bassem and Mina drink the same amount ?

What Bassem drank  

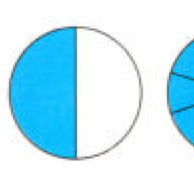
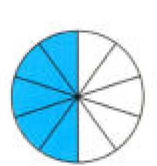
What Mina drank  $\frac{3}{6}$

$\frac{1}{2}$ and $\frac{3}{6}$ show the same amount.

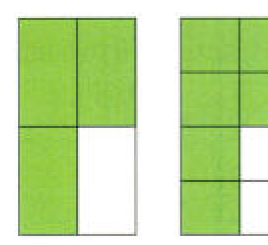
So, Bassem and Mina drank the same amount.

$\frac{1}{2}$ and $\frac{3}{6}$ are equivalent fractions $\frac{1}{2} = \frac{3}{6}$

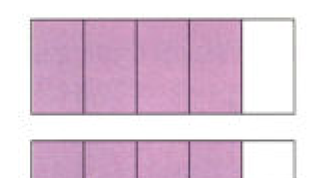
Examples for equivalent fractions

$\frac{1}{2} = \frac{5}{10}$



$\frac{3}{4} = \frac{6}{8}$



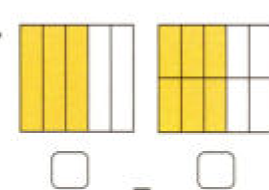
$\frac{4}{5} = \frac{8}{10}$

Notes for parents :

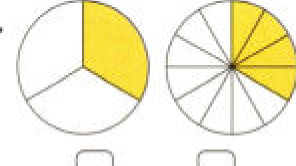
- Ask your child to draw a model to compare $\frac{1}{3}$ and $\frac{2}{6}$.

Example 1

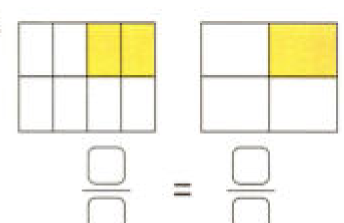
Write the equivalent fractions for each.

a. 

$\frac{\square}{\square} = \frac{\square}{\square}$

b. 

$\frac{\square}{\square} = \frac{\square}{\square}$

c. 

$\frac{\square}{\square} = \frac{\square}{\square}$

Solution 

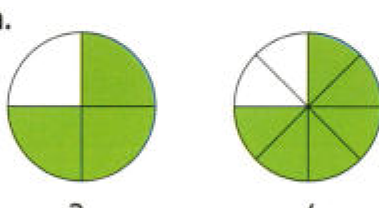
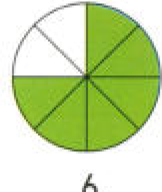
a. $\frac{3}{5} = \frac{6}{10}$

b. $\frac{1}{3} = \frac{4}{12}$

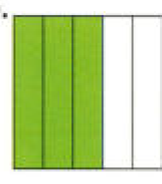
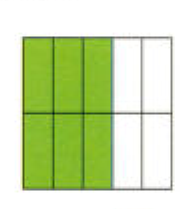
c. $\frac{2}{8} = \frac{1}{4}$

Check your understanding

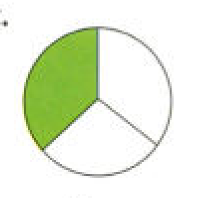
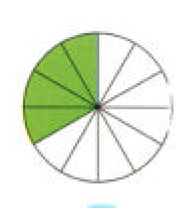
1. Use the models to write the equivalent fractions.

a.  

$\frac{3}{4} = \frac{6}{\square}$

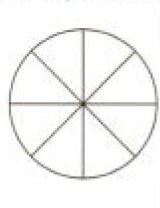
b.  

$\frac{3}{5} = \frac{\square}{10}$

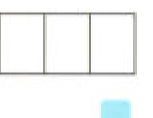
c.  

$\frac{1}{3} = \frac{\square}{12}$

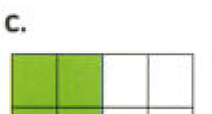
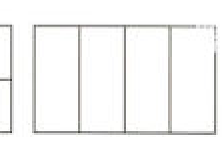
2. Color and write the equivalent fractions.

a.  

$\frac{1}{4} = \frac{\square}{8}$

b. 

$\frac{1}{3} = \frac{\square}{\square}$

c.  

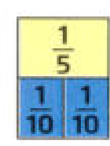
$\frac{4}{8} = \frac{\square}{\square}$

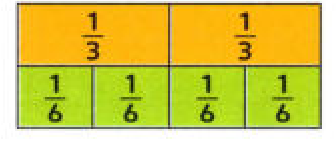
• Ask your child to draw models to show an equivalent fraction to $\frac{3}{4}$.

Learn 2 How can you model the same fraction in different ways ?

Equivalent fractions name the same part of a whole or part of a set.

By using the fraction wall, here are some equivalent fractions.





$\frac{1}{3}$ $\frac{1}{3}$

$\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$

$\frac{1}{5} = \frac{2}{10}$ $\frac{3}{4} = \frac{9}{12}$ $\frac{2}{3} = \frac{4}{6}$

1
$\frac{1}{2}$ $\frac{1}{2}$
$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$
$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$
$\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$
$\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$
$\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$
$\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$
$\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$
$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$
$\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$
$\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$

More examples :

- $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = ...$
- $\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = ...$

Example 2

Use the fraction wall. Complete the equivalent fractions.

a. $\frac{1}{2}$ / $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$

$\frac{1}{2} = \frac{\square}{6}$

b. $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ / $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$

$\frac{3}{4} = \frac{\square}{8}$

c. $\frac{1}{6}$ $\frac{1}{6}$ / $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$

$\frac{2}{6} = \frac{\square}{12}$

Solution 

a. 3 **b.** 6 **c.** 4

Example 3

Use the fraction wall. Write the missing numerator.

a. $\frac{1}{4} = \frac{\square}{12}$ **b.** $\frac{2}{5} = \frac{\square}{10}$ **c.** $\frac{2}{3} = \frac{\square}{9}$ **d.** $\frac{6}{8} = \frac{\square}{4}$

Solution 

a. 3 **b.** 4 **c.** 6 **d.** 3

Notes for parents :

- Ask your child to use fraction strips to write three equivalent fractions to $\frac{1}{3}$.

Example 4

By using the fraction wall, write one fraction or more equivalent to the following fractions.

a. $\frac{1}{3}$ b. $\frac{1}{4}$ c. $\frac{2}{3}$

Solution

a. $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$

b. $\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$

c. $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$



Check your understanding

1. Use the fraction wall to complete the following equivalent fractions.

a.

$\frac{1}{6}$	
$\frac{1}{12}$	$\frac{1}{12}$

$\frac{1}{6} =$ ______

b.

$\frac{1}{2}$	
$\frac{1}{4}$	$\frac{1}{4}$

$\frac{1}{2} =$ ______

c.

$\frac{1}{3}$			$\frac{1}{3}$		
$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$

$\frac{2}{3} =$ ______

d.

$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$	
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

$\frac{4}{6} =$ ______

2. Use the fraction wall to complete.

a. $\frac{3}{4} = \frac{\square}{8} = \frac{9}{\square}$

b. $\frac{2}{6} = \frac{4}{\square} = \frac{\square}{3}$

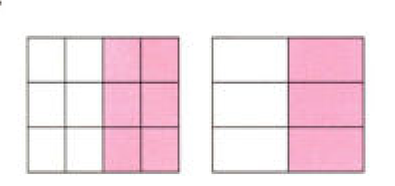
• Ask your child how he/she show that $\frac{1}{6}$ and $\frac{2}{12}$ are equivalent fractions.

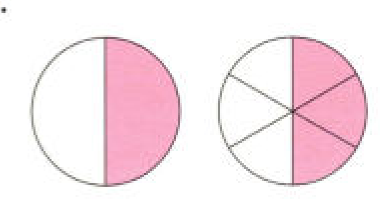
Exercise
5
on lesson 9

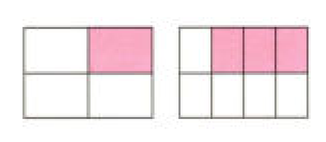
Same Fraction, Different Ways

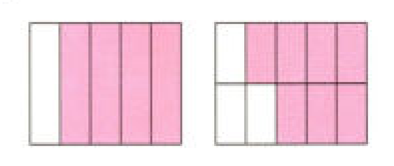
REMEMBER UNDERSTAND APPLY PROBLEM SOLVING | From the school book

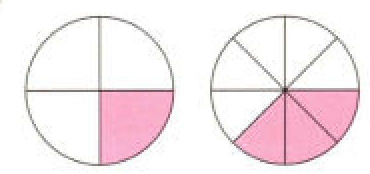
1. Write if the fractions are equivalent or not equivalent.

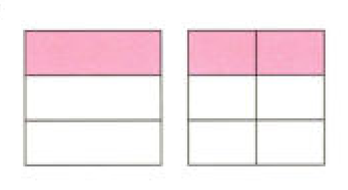
a.

______

b.

______

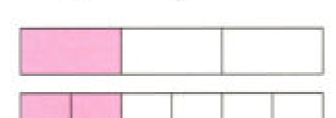
c.

______

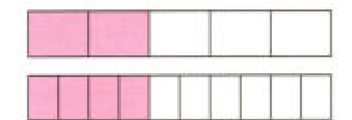
d.

______

e.

______

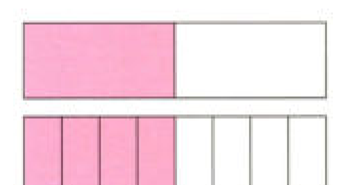
f.

______

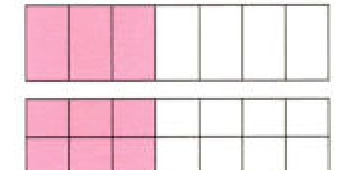
2. Write the missing numerator or denominator.

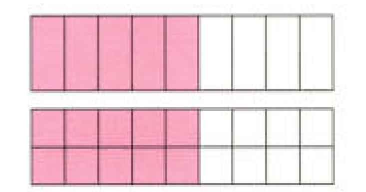
a. $\frac{1}{3} = \frac{\square}{6}$


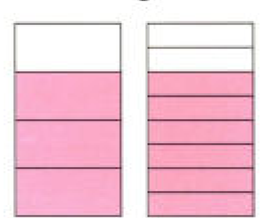
b. $\frac{2}{5} = \frac{\square}{10}$


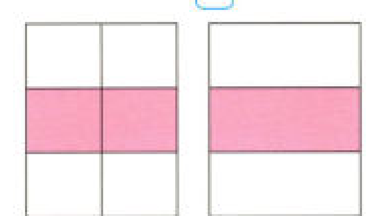
c. $\frac{1}{4} = \frac{\square}{8}$

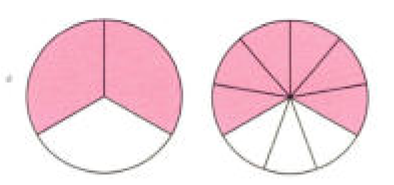

d. $\frac{1}{2} = \frac{4}{\square}$


e. $\frac{3}{7} = \frac{6}{\square}$


f. $\frac{5}{9} = \frac{10}{\square}$


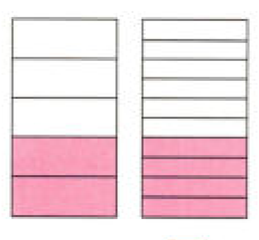
g. $\frac{3}{4} = \frac{\square}{8}$


h. $\frac{2}{6} = \frac{1}{\square}$


i. $\frac{2}{3} = \frac{\square}{9}$


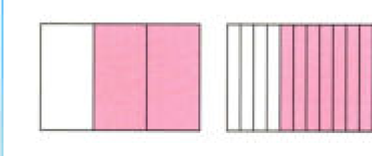
3. Complete to show the equivalent fraction.

a.



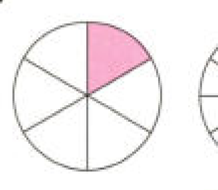
$\frac{2}{5} = \frac{\square}{\square}$

b.



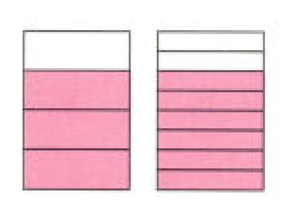
$\frac{2}{3} = \frac{\square}{\square}$

c.



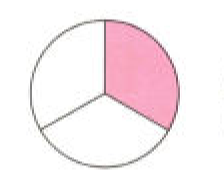
$\frac{1}{6} = \frac{\square}{\square}$

d.



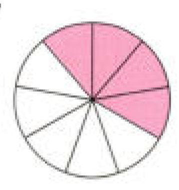
$\frac{\square}{\square} = \frac{\square}{\square}$

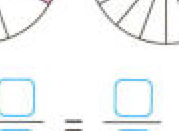
e.



$\frac{\square}{\square} = \frac{\square}{\square}$

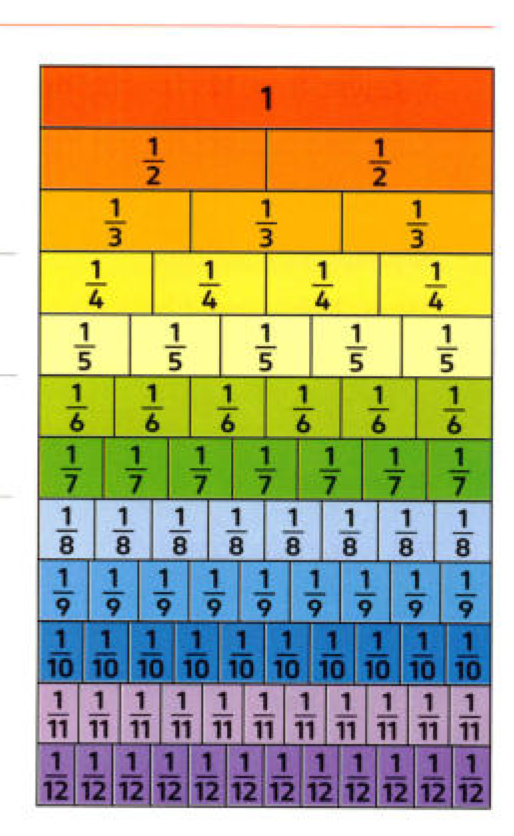
f.





$\frac{\square}{\square} = \frac{\square}{\square}$

4. Look at the fraction wall.



a. Write if each pair of fractions are equivalent or not.

(1) $\frac{2}{5}$ and $\frac{4}{10}$ ________

(2) $\frac{5}{8}$ and $\frac{2}{3}$ ________

(3) $\frac{4}{8}$ and $\frac{3}{6}$ ________

(4) $\frac{5}{6}$ and $\frac{7}{8}$ ________

(5) $\frac{1}{2}$ and $\frac{5}{10}$ ________

(6) $\frac{2}{3}$ and $\frac{5}{6}$ ________

b. Record two fractions that are equivalent to $\frac{1}{4}$.

________, ________

c. Record two fractions that are equivalent to $\frac{2}{3}$.

________, ________

5. Use the fraction wall. Complete the equivalent fraction.

a.

$\frac{1}{3}$		$\frac{1}{3}$			
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$		

$\frac{2}{3} = \frac{\square}{6}$

b.

$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$			
$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$		

$\frac{4}{5} = \frac{\square}{10}$

c.

$\frac{1}{2}$							
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$				

$\frac{1}{2} = \frac{\square}{8}$

d.

$\frac{1}{4}$			$\frac{1}{4}$			$\frac{1}{4}$					
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$			

$\frac{3}{4} = \frac{\square}{12}$

Challenge

6. Samar has a recipe for healthy snack bars that she received from her friend. The recipe uses measuring cups and teaspoons. Her friend sent a $\frac{1}{4}$ cup and $\frac{1}{4}$ teaspoon, so Samar has to rewrite the recipe using equivalent fractions.



[Hint: Think about an equivalent fraction for $\frac{1}{2}$ using fourths.]

Healthy Snack Bars

Ingredients :

- $\frac{1}{2}$ cup rolled oats.
- 2 cups crispy rice cereal.
- $\frac{1}{4}$ cup honey.
- $1\frac{1}{2}$ cups peanut butter.
- $\frac{1}{2}$ teaspoon of vanilla.
- 1 cup chocolate chips.

Rewrite :

a. ________ cup rolled oats.

b. ________ cup peanut butter.

c. ________ cup crispy rice cereal.

d. ________ teaspoon of vanilla.

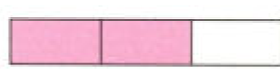
e. ________ cup honey.

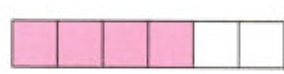
f. ________ cup chocolate chips.

Multiple Choice Questions

Choose the correct answer.

1. What is the missing numerator?

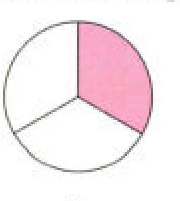
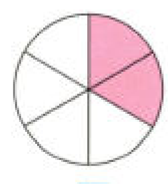




$\frac{2}{3} = \frac{\square}{6}$

A. 1 B. 2 C. 3 D. 4

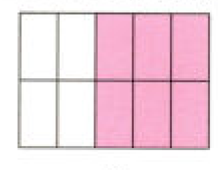
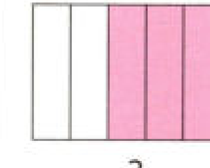
2. What is the missing numerator?

$\frac{1}{3} = \frac{\square}{6}$

A. 1 B. 2 C. 3 D. 6

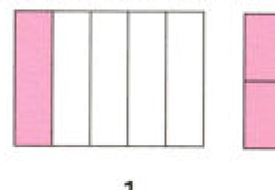
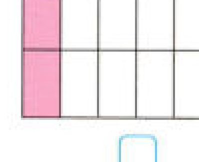
3. What is the missing denominator?

$\frac{6}{10} = \frac{3}{\square}$

A. 3 B. 5 C. 6 D. 10

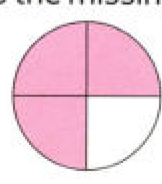
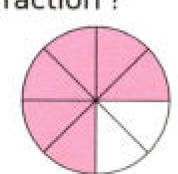
4. What is the missing fraction?

$\frac{1}{5} = \frac{\square}{\square}$

A. $\frac{4}{10}$ B. $\frac{3}{10}$ C. $\frac{2}{10}$ D. $\frac{1}{10}$

5. What is the missing fraction?

$\frac{3}{4} = \frac{\square}{\square}$

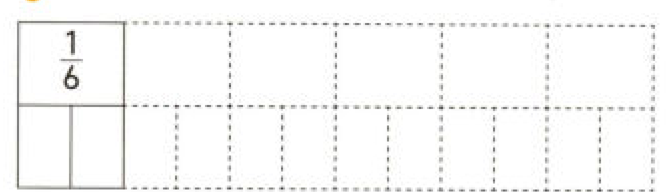
A. $\frac{3}{8}$ B. $\frac{4}{8}$ C. $\frac{5}{8}$ D. $\frac{6}{8}$

6. What is the equivalent fraction to $\frac{3}{5}$?

$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$		

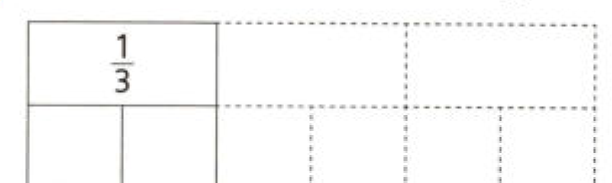
A. $\frac{3}{10}$ B. $\frac{4}{10}$ C. $\frac{5}{10}$ D. $\frac{6}{10}$

7. What is the equivalent fraction to $\frac{1}{6}$?



A. $\frac{1}{12}$ B. $\frac{2}{12}$ C. $\frac{3}{12}$ D. $\frac{4}{12}$

8. What is the equivalent fraction to $\frac{1}{3}$?



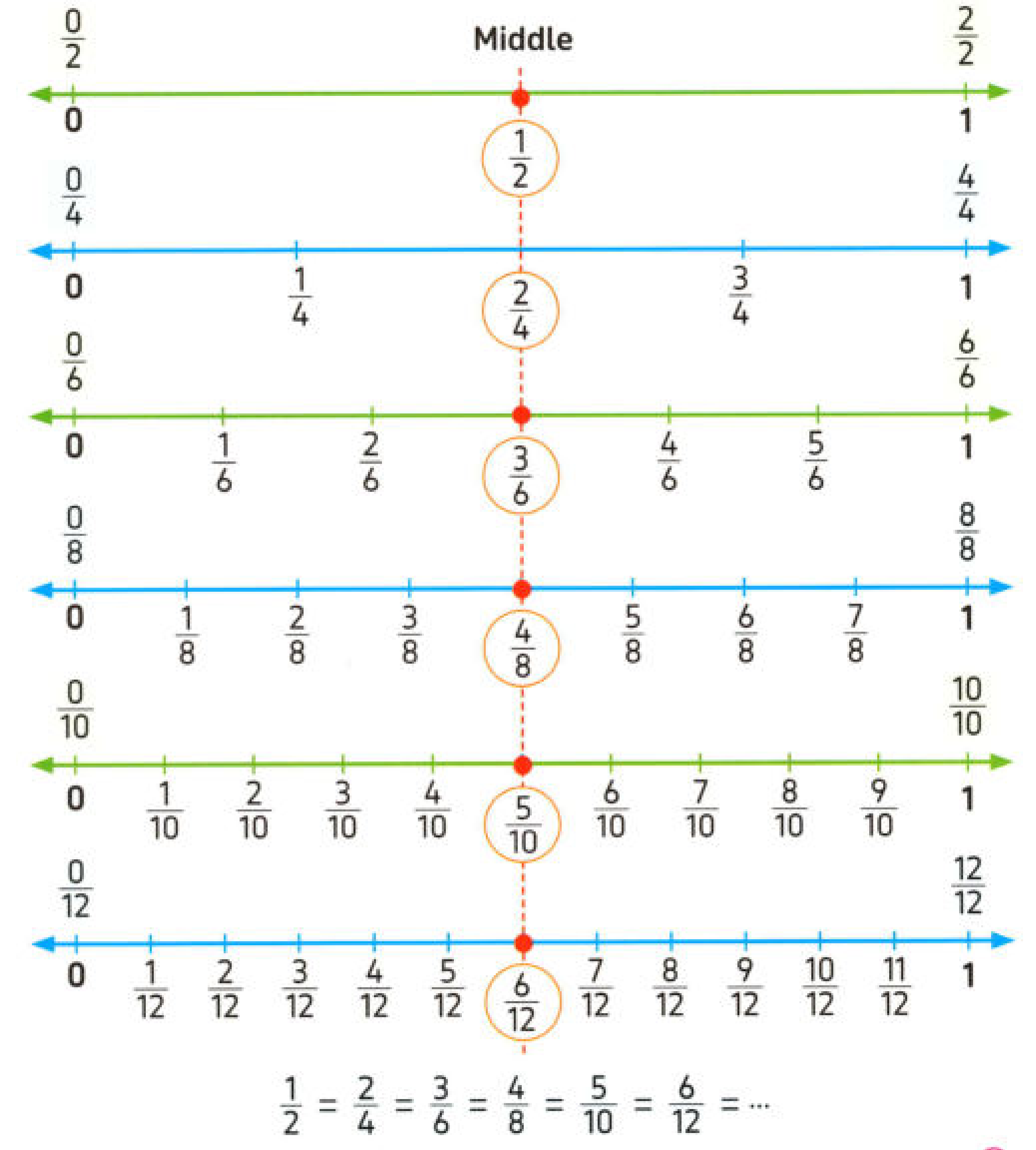
A. $\frac{2}{6}$ B. $\frac{4}{6}$ C. $\frac{2}{9}$ D. $\frac{6}{9}$

Lessons 10 & 11

▸ Benchmark Fractions
▸ Applications on the Benchmark Fractions

Learn 1 Benchmark fractions

- Benchmark fractions are common fractions that you can use to judge and compare other fractions.
- 0, $\frac{1}{2}$ and 1 are benchmark fractions, the following number lines show the equivalent fractions to these benchmark fractions.



$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12} = \cdots$$

Note that :
In each fraction of $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$ and $\frac{6}{12}$,... the numerator is equal to half the denominator.

Notes for parents :

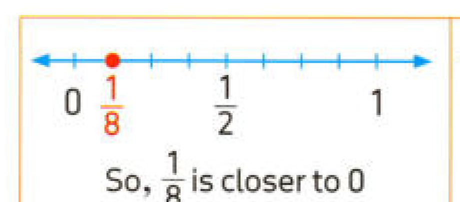
- Ask your child to draw models to check that $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \cdots$

Example 1

Find benchmarks for $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$

Locate each fraction on a number line. Decide if the fraction is closer to 0 , $\frac{1}{2}$ or 1

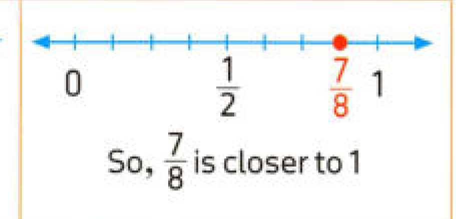
Solution



So, $\frac{1}{8}$ is closer to 0

0 $\frac{1}{2}$ $\frac{5}{8}$ 1

So, $\frac{5}{8}$ is closer to $\frac{1}{2}$



So, $\frac{7}{8}$ is closer to 1

Remarks

If the numerator is much less than half the denominator, the fraction is closer to 0	If the numerator is about half the denominator, the fraction is closer to $\frac{1}{2}$	If the numerator is much more than half the denominator, the fraction is closer to 1

For example :

- For $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$, half of the denominator is 4
- For $\frac{1}{8}$, 1 is much less than 4. So, $\frac{1}{8}$ is closer to 0
- For $\frac{5}{8}$, 5 is about 4 . So, $\frac{5}{8}$ is closer to $\frac{1}{2}$
- For $\frac{7}{8}$, 7 is much more than 4 . So, $\frac{7}{8}$ is closer to 1

Check your understanding

1. Circle all fractions that are equivalent to $\frac{1}{2}$

$\frac{2}{5}$ $\frac{3}{6}$ $\frac{7}{12}$ $\frac{5}{10}$ $\frac{10}{20}$ $\frac{10}{18}$ $\frac{4}{8}$ $\frac{8}{14}$ $\frac{5}{6}$ $\frac{8}{16}$

2. Write whether the fraction is closer to 0 , $\frac{1}{2}$ or 1.
Use the number line.

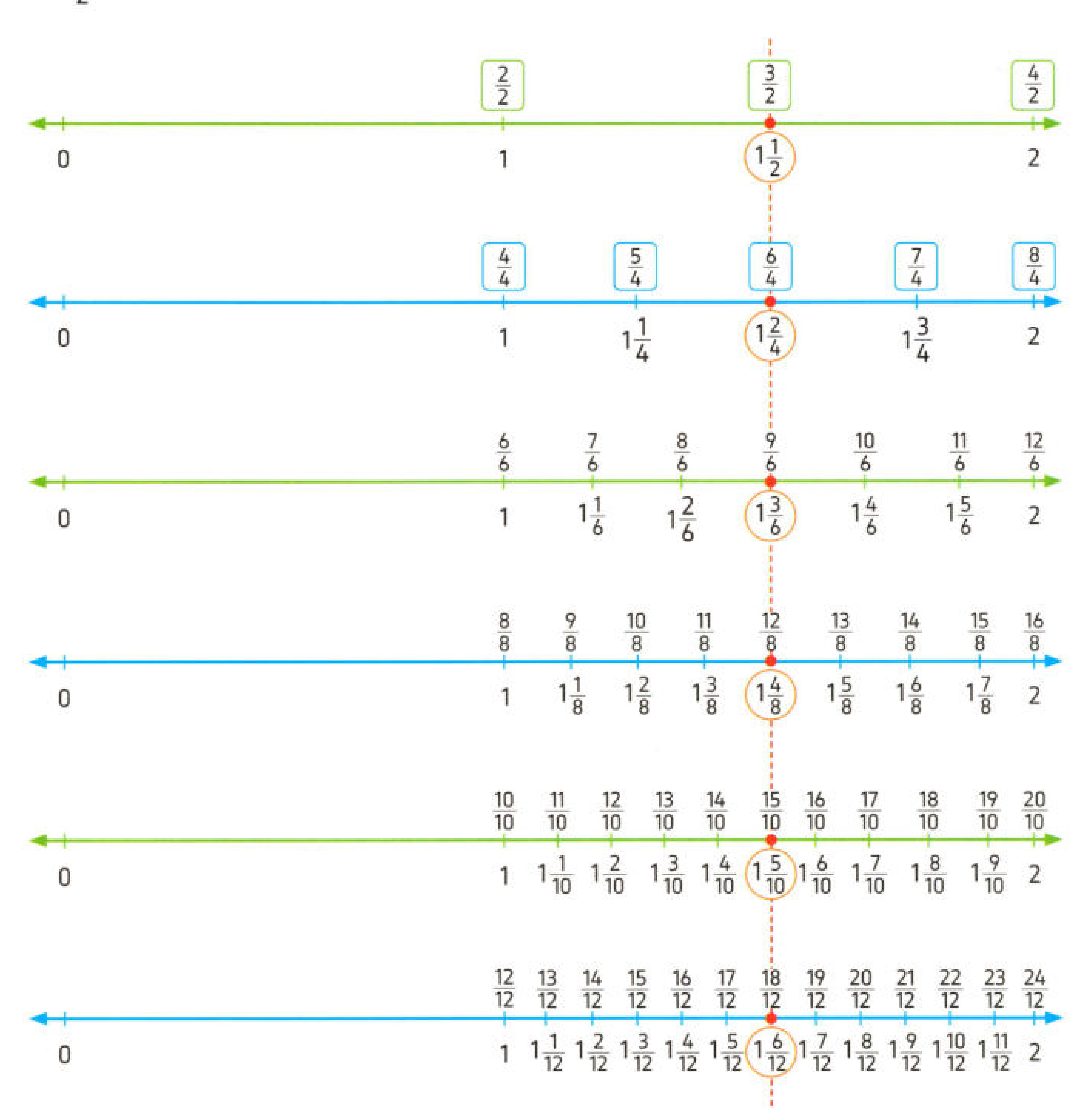
0 $\frac{1}{2}$ 1

a. $\frac{8}{10}$	b. $\frac{6}{10}$	c. $\frac{2}{10}$	d. $\frac{9}{10}$	e. $\frac{4}{10}$

• Ask your child how he/she know that $\frac{7}{10}$ is closer to $\frac{1}{2}$ than 1

More benchmark fractions

- $1\frac{1}{2}$ and 2 are also benchmark fractions you can use to compare fractions.



$$1\frac{1}{2} = 1\frac{2}{4} = 1\frac{3}{6} = 1\frac{4}{8} = 1\frac{5}{10} = 1\frac{6}{12} = \cdots$$

$$\frac{3}{2} = \frac{6}{4} = \frac{9}{6} = \frac{12}{8} = \frac{15}{10} = \frac{18}{12} = \cdots$$

Notes for parents :

- Ask your child to write equivalent fractions to the benchmark fraction $1\frac{1}{2}$

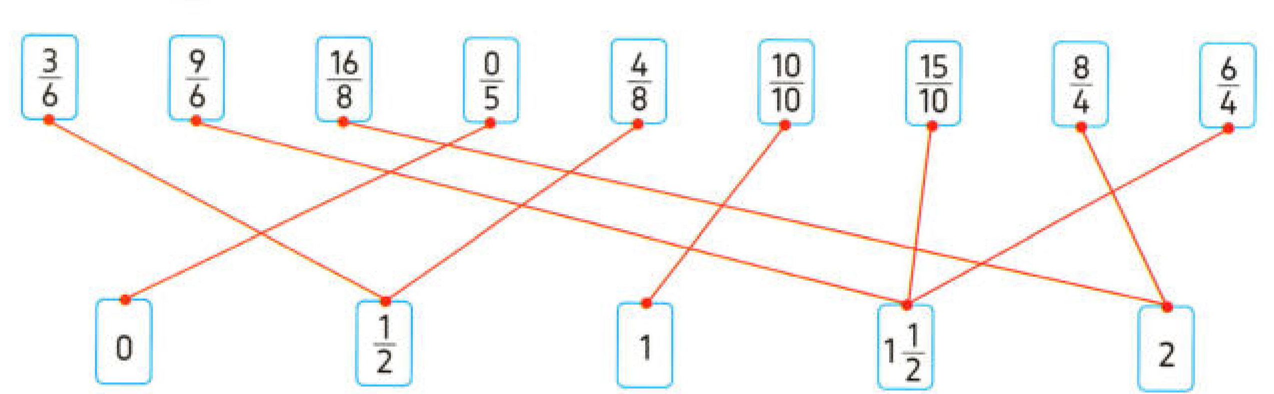
Example 2

Draw a line to match each fraction to its equivalent benchmark fraction.
You may match a fraction to more than an equivalent fraction.

$\frac{3}{6}$ $\frac{9}{6}$ $\frac{16}{8}$ $\frac{0}{5}$ $\frac{4}{8}$ $\frac{10}{10}$ $\frac{15}{10}$ $\frac{8}{4}$ $\frac{6}{4}$

0 $\frac{1}{2}$ 1 $1\frac{1}{2}$ 2

Solution 



Check your understanding

Write an equivalent fraction to each benchmark fraction.

a. $\frac{1}{2} =$ ______ b. $1 =$ ______ c. $2 =$ ______

d. $0 =$ ______ e. $1\frac{1}{2} =$ ______

• Ask your child how he/she can find an equivalent fraction to $1\frac{1}{2}$

Learn 2 Comparing fractions using benchmark fractions

You can decide if a fraction is greater or less than a benchmark fraction (one half or one whole) and use this to compare two fractions indirectly.

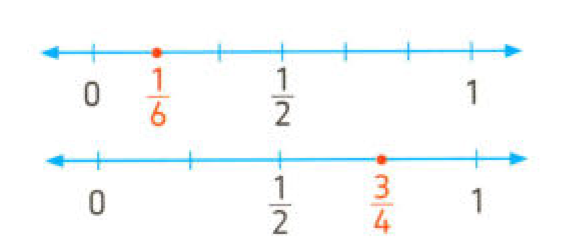
Example 3

Compare $\frac{3}{4}$ and $\frac{1}{6}$ using benchmark fractions.

Solution 

$\frac{1}{6} < \frac{1}{2}$ because 1 is less than half of 6.

$\frac{3}{4} > \frac{1}{2}$ because 3 is greater than half of 4.



So, $\frac{3}{4} > \frac{1}{6}$

Remarks

1. Any **proper** fraction is **smaller than 1**, for example: $\frac{2}{3} < 1$
2. Any **improper** fraction is **greater than or equal to 1**, for example: $\frac{7}{4} > 1$
3. Any **improper** fraction is **greater than any proper fraction**, for example: $\frac{11}{5} > \frac{5}{6}$

Example 4

Use benchmark fractions to compare. Write "< , > or =".

a. $\frac{3}{6}$ ☐ $\frac{4}{12}$

b. $\frac{4}{10}$ ☐ $\frac{5}{6}$

c. $\frac{11}{12}$ ☐ $\frac{4}{9}$

d. $\frac{7}{6}$ ☐ $\frac{5}{7}$

e. $\frac{6}{12}$ ☐ $\frac{4}{8}$

f. 1 ☐ $\frac{8}{5}$



a. $\frac{3}{6} = \frac{1}{2}$

$\frac{4}{12} < \frac{1}{2}$ because 4 is less than half of 12

So, $\frac{3}{6} > \frac{4}{12}$

b. $\frac{4}{10} < \frac{1}{2}$ because 4 is less than half of 10

$\frac{5}{6} > \frac{1}{2}$ because 5 is greater than half of 6

So, $\frac{4}{10} < \frac{5}{6}$

Notes for parents :

- Remind your child how he/she compare two fractions having the same numerator. Let him/her compare only the denominators.

c. $\frac{11}{12} > \frac{1}{2}$ and $\frac{4}{9} < \frac{1}{2}$

So, $\frac{11}{12}$ > $\frac{4}{9}$

d. $\frac{7}{6} > 1$ because it is an improper fraction.

$\frac{5}{7} < 1$ because it is a proper fraction.

So, $\frac{7}{6}$ > $\frac{5}{7}$

e. $\frac{6}{12} = \frac{1}{2}$ and $\frac{4}{8} = \frac{1}{2}$

So, $\frac{6}{12}$ = $\frac{4}{8}$

f. 1 < $\frac{8}{5}$

because $\frac{8}{5}$ is an improper fraction.

Example 5

Use the benchmark fractions 0, $\frac{1}{2}$ and 1 to order the fractions $\frac{7}{8}, \frac{5}{10}, \frac{2}{6}$ in an ascending order.

Solution

$\frac{7}{8} > \frac{1}{2}$ because 7 is greater than half of 8.

$\frac{5}{10} = \frac{1}{2}$

$\frac{2}{6} < \frac{1}{2}$ because 2 is less than half of 6.

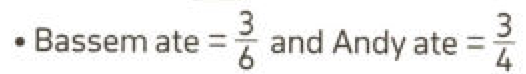
So, the order is : $\frac{2}{6}$, $\frac{5}{10}$, $\frac{7}{8}$

Example 6

Bassem and Andy were eating same-sized sandwich. Bassem's sandwich was cut into 6 equal parts and Andy's sandwich was cut into 4 equal parts. Each of them ate 3 parts of his sandwich. **Who ate the most ?**



Solution



• Bassem ate = $\frac{3}{6}$ and Andy ate = $\frac{3}{4}$



• $\frac{3}{6} = \frac{1}{2}$ and $\frac{3}{4} > \frac{1}{2}$

Then, $\frac{3}{4}$ > $\frac{3}{6}$

So, Andy ate the most.

Check your understanding

1. **Use benchmark fractions to compare. Write "< , > or =".**

a. $\frac{7}{18}$ ☐ $\frac{3}{4}$

b. $\frac{10}{20}$ ☐ $\frac{9}{16}$

c. $\frac{7}{12}$ ☐ $\frac{10}{10}$

d. $\frac{3}{7}$ ☐ $\frac{6}{5}$

e. 0 ☐ $\frac{2}{3}$

f. $\frac{10}{7}$ ☐ 1

2. Put the fractions $\frac{4}{6}$, $\frac{5}{12}$, $\frac{4}{8}$ in a descending order.

3. Mazen jogged for $\frac{2}{4}$ hour. He swam for $\frac{5}{6}$ hour. Which activity took longer ? Explain.

• Remind your child that any improper fraction is greater than any proper fraction, because any improper fraction is greater than or equal to 1 but any proper fraction is smaller than 1.

• Help your child use benchmark fractions to compare $\frac{7}{18}$ and $\frac{3}{4}$

Exercise
6
on lessons 10&11

▸ Benchmark Fractions
▸ Applications on the Benchmark Fractions

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

First : Problems on benchmark fractions

1. Write whether the fraction is closer to 0 , $\frac{1}{2}$, or 1.

a. Use the number line.

0 $\frac{1}{2}$ 1



$\frac{3}{8}$ .... $\frac{7}{8}$ ....



$\frac{1}{8}$ .... $\frac{5}{8}$ ....

b. Use the number line.





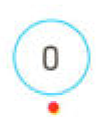
0 $\frac{1}{2}$ 1

$\frac{10}{12}$ .... $\frac{5}{12}$ .... $\frac{7}{12}$ .... $\frac{2}{12}$ ....

2. Locate each fraction on the number line, then decide whether the fraction is closer to zero, half or one, then check the suitable box.

Fraction	Number line	0	$\frac{1}{2}$	1
$\frac{2}{4}$	0 ——— 1			
$\frac{1}{6}$	0 ——— 1			
$\frac{7}{8}$	0 ——— 1			
$\frac{4}{10}$	0 ——— 1			

3. Draw a line between each fraction and its equivalent benchmark fraction. (Some benchmark fractions can be connected to more than one fraction)











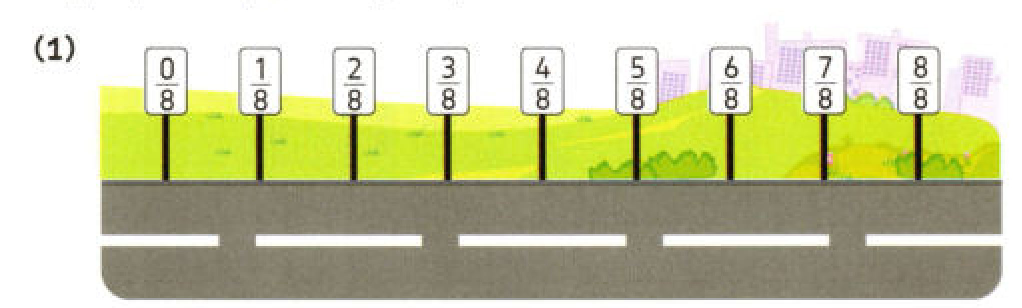
0 $\frac{1}{2}$ 1 $1\frac{1}{2}$ 2

$\frac{2}{4}$ $\frac{0}{3}$ $\frac{6}{4}$ $\frac{8}{4}$ $\frac{9}{18}$ $\frac{7}{7}$ $\frac{15}{10}$ $\frac{6}{3}$ $\frac{14}{7}$

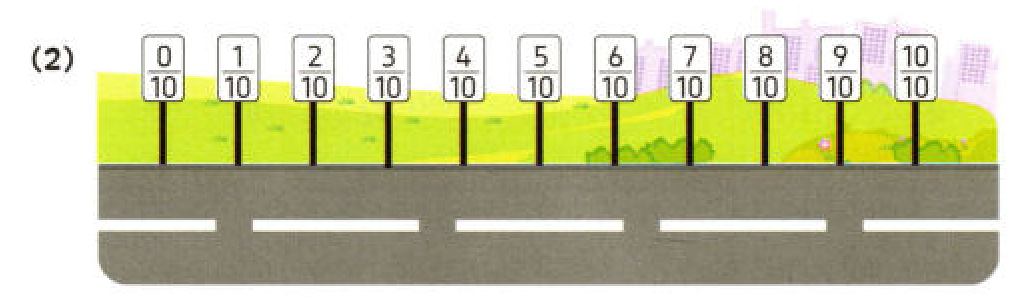
4. Sherif was in charge of placing benches along 1 kilometer walking path in Cairo. He was supposed to put the benches at the beginning, middle, and end of the path.

a. **At what kilometer marker posts should Sherif put benches ? Draw benches in the appropriate spots along the path.**

(1)

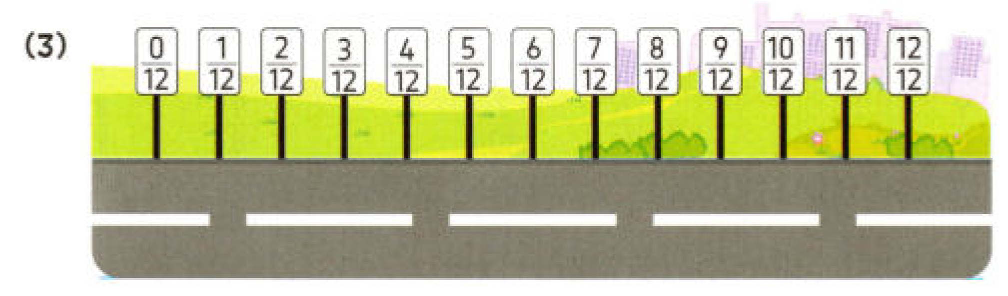


(2)



• Complete : $\frac{2}{10}$ is closer to the benchmark fraction ....

(3)

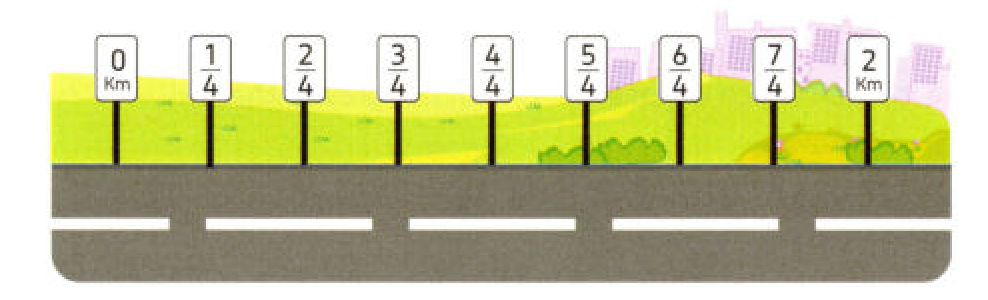


• Complete : **a.** $\frac{8}{12}$ is closer to the benchmark fraction ....

b. $\frac{11}{12}$ is closer to the benchmark fraction ....

b. For Sherif's next job, the path is 2-kilometers long. He must place a bench every $\frac{1}{2}$ kilometer from the beginning to end. Where should he place them ?

Draw benches in the appropriate spots along the path.



Second : Problems on comparing fractions using benchmark fractions

1. Use benchmarks to compare. Complete the answer of each problem.

a. Compare $\frac{3}{4}$ and $\frac{2}{6}$

Because $\frac{3}{4}$ ☐ $\frac{1}{2}$, and $\frac{1}{2}$ ☐ $\frac{2}{6}$

So, $\frac{3}{4}$ ☐ $\frac{2}{6}$

b. Compare $\frac{6}{8}$ and $\frac{11}{9}$

Because $\frac{6}{8}$ ☐ 1, and 1 ☐ $\frac{11}{9}$

So, $\frac{6}{8}$ ☐ $\frac{11}{9}$

c. Compare $\frac{9}{7}$ and $\frac{5}{6}$

Because $\frac{9}{7}$ ☐ 1, and 1 ☐ $\frac{5}{6}$

So, $\frac{9}{7}$ ☐ $\frac{5}{6}$

d. Compare $\frac{7}{12}$ and $\frac{6}{14}$

Because $\frac{7}{12}$ ☐ $\frac{1}{2}$, and $\frac{1}{2}$ ☐ $\frac{6}{14}$

So, $\frac{7}{12}$ ☐ $\frac{6}{14}$

2. Compare. Write "< , > or =".

a. $\frac{4}{7}$ ☐ $\frac{1}{2}$

b. $\frac{7}{8}$ ☐ $\frac{1}{2}$

c. $\frac{8}{8}$ ☐ 1

d. $\frac{5}{10}$ ☐ $\frac{2}{6}$

e. $\frac{4}{8}$ ☐ $\frac{6}{12}$

f. $\frac{10}{20}$ ☐ $\frac{11}{18}$

g. $\frac{3}{4}$ ☐ $\frac{3}{10}$

h. $\frac{5}{6}$ ☐ $\frac{5}{12}$

i. $\frac{5}{6}$ ☐ $\frac{3}{10}$

j. $\frac{11}{18}$ ☐ $\frac{9}{5}$

k. $\frac{6}{14}$ ☐ $\frac{7}{10}$

l. $\frac{9}{8}$ ☐ $\frac{8}{9}$

3. Use the benchmark fractions 0 , $\frac{1}{2}$ and 1 to order each group of the fractions.

a. $\frac{3}{6}$, $\frac{6}{8}$, $\frac{2}{10}$ [From the least to the greatest]

b. $\frac{5}{10}$, $\frac{2}{6}$, $\frac{7}{12}$ [From the least to the greatest]

c. $\frac{1}{4}$, $\frac{9}{9}$, $\frac{5}{6}$ [From the greatest to the least]

d. $\frac{10}{11}$, $\frac{5}{5}$, $\frac{10}{20}$ [From the greatest to the least]

4. a. Circle the fraction which is closer to $\frac{1}{2}$, but not greater than it.

$\frac{8}{12}$, $\frac{2}{5}$

b. Circle the fraction which is closer to $\frac{1}{2}$, but not equal to $\frac{1}{2}$

$\frac{2}{4}$, $\frac{7}{16}$

Story Problems

1. **Use a Benchmark** For her birthday party, Menna made two cakes because she had so many friends coming. The two cakes were the same size. Her mom cut one cake into 10 pieces and the other into 6 pieces. $\frac{5}{10}$ of one cake was eaten and $\frac{5}{6}$ of the other cake was eaten. Which cake had more eaten ? Use benchmark fractions to solve the problem.

2. Rashad and Malek each got a candy bar that was the same size. Rashed ate $\frac{4}{6}$ of his candy bar and Malek ate $\frac{4}{8}$ of his.
Who ate more than $\frac{1}{2}$? How do you know ?

3. Mariam and Jana each had identical sandwiches. Mariam cut her sandwich into 12 pieces and ate 4 of them. Jana cut hers into 6 pieces and ate 3. Who ate more ? How do you know ?



Sandwich wrap

4. At basketball practice, Hatem made 14 of his 18 shots. His best friend, Amir made 8 of his 16 shots. Who made a larger fraction of the shots taken ?

5. Mazen and Ezz each had a candy bar. They each ate $\frac{1}{2}$ of the bar, but Mazen ate more candy than Ezz. How is this possible ? Use a model to explain your thinking.

Challenge

6. Which of the following makes this true ? Use benchmark fractions.

$$\frac{3}{4} > \frac{\square}{10}$$

A. 4 **B.** 8 **C.** 9 **D.** 10

Multiple Choice Questions

Choose the correct answer.

1. The fraction $\frac{5}{8}$ is nearest to the benchmark fraction ______ [El-Menia 23]
   A. $\frac{1}{2}$ B. $1\frac{1}{2}$ C. 1 D. 0

2. $\frac{7}{12}$ is closer to the benchmark fraction ______ [Ismailia 23, El-Menia 23]
   A. 1 B. $\frac{1}{2}$ C. 0 D. $\frac{1}{4}$

3. $\frac{8}{9}$ is closer to the benchmark fraction ______ [Kafr El-Sheikh 23]
   A. 2 B. 1 C. 0 D. $\frac{1}{2}$

4. $\frac{7}{12} \bigcirc \frac{10}{10}$
   A. $>$ B. $<$ C. $=$

5. Which of the following fractions is equal to $\frac{1}{2}$?
   A. $\frac{4}{7}$ B. $\frac{5}{10}$ C. $\frac{6}{3}$ D. $\frac{8}{8}$

6. Which of the following fractions is greater than $\frac{1}{2}$?
   A. $\frac{2}{4}$ B. $\frac{2}{6}$ C. $\frac{5}{8}$ D. $\frac{10}{20}$

7. Which of the following fractions is less than $\frac{1}{2}$?
   A. $\frac{3}{3}$ B. $\frac{5}{6}$ C. $\frac{3}{8}$ D. $\frac{6}{12}$

8. Which of the following fractions is closer to 1?
   A. $\frac{1}{7}$ B. $\frac{2}{11}$ C. $\frac{4}{10}$ D. $\frac{10}{11}$

9. Which of the following fractions is greater than 1?
   A. $\frac{4}{5}$ B. $\frac{5}{8}$ C. $\frac{7}{5}$ D. $\frac{9}{10}$

10. Which of the following fractions is the greatest?
    A. $\frac{10}{12}$ B. $\frac{8}{7}$ C. $\frac{9}{9}$ D. $\frac{5}{6}$

11. Which of the following shows the fractions ordered from the greatest to the least?
    A. $\frac{6}{12}, \frac{5}{6}, \frac{3}{10}$ B. $\frac{5}{6}, \frac{6}{12}, \frac{3}{10}$
    C. $\frac{3}{10}, \frac{6}{12}, \frac{5}{6}$ D. $\frac{6}{12}, \frac{3}{10}, \frac{5}{6}$



Concept 3
Multiplication and Fractions

Did you know ?!

Believe it or not, Koalas can sleep up to $\frac{3}{4}$ of a day ! How many hours do they sleep in a day ?

Lesson No.	Lesson Name	Learning Objectives
Lessons 12 to 14	Equivalent Fractions Using the Identity Property.	• Students will use the identity property of multiplication to create equivalent fractions.
	Equivalent Fractions Using Multiplication and Division.	• Students will multiply and divide to create equivalent fractions.
	Find the Missing in Equivalent Fractions.	• Students will explain the relationship between multiples and equivalent fractions.
Lesson 15	Multiplying by a Whole	• Students will multiply a fraction by a whole number.

Lessons 12 to 14

- Equivalent Fractions Using the Identity Property
- Equivalent Fractions Using Multiplications and Division
- Find the Missing in Equivalent Fractions

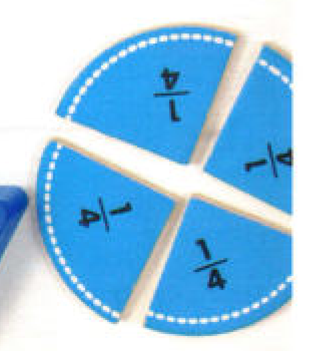


Learn 1 Equivalent fractions using the identity property

Property :

When you multiply any number by 1, the product is equal to that number.

- This property is called **identity property of multiplication**.
- 1 is called the **multiplicative identity element**.



For example :

- $35 \times 1 = 35$
- $1 \times 3{,}205 = 3{,}205$
- $\frac{1}{2} \times 1 = \frac{1}{2}$
- $1 \times \frac{5}{8} = \frac{5}{8}$

You can use this property to find equivalent fractions as follows:

$\frac{1}{2} \times 1 = \frac{1}{2}$

You can write 1 as a fraction.

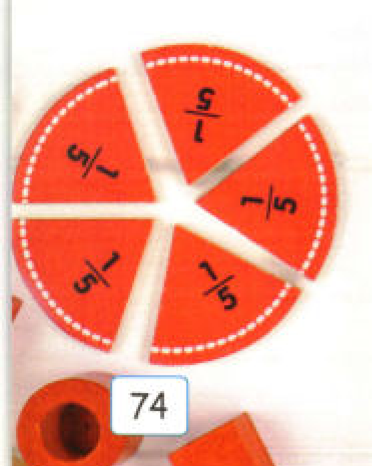
$1 = \frac{2}{2}$

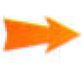
Then, $\frac{1}{2} \times \frac{2}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$



Remember

Equivalent fractions are fractions have the same value, even though they may look different.



So, $\frac{1}{2} = \frac{2}{4}$  $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions.

Notes for parents :

- Remind your child that 1 is the identity element in multiplication operation. Let him/her use the property to find equivalent fractions.

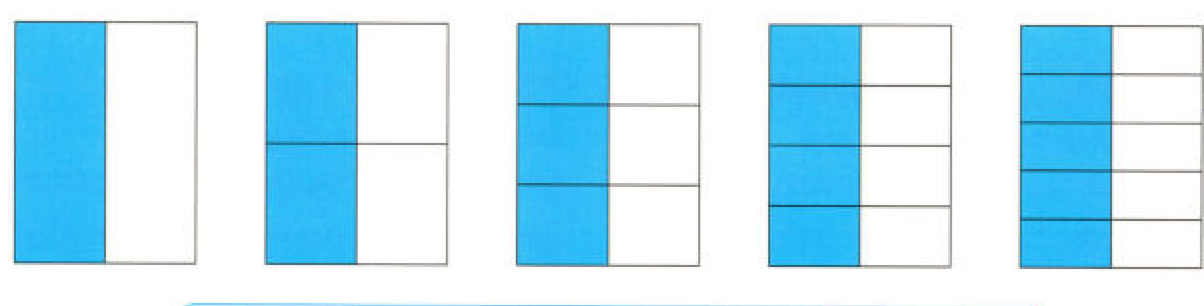
Different numbers, same value (Many missing multiples)

- There are many ways to write 1 as a fraction.
  In every case, the numerator and denominator are the same.

$$1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \cdots$$

So, $\frac{1}{2} = \frac{1}{2} \times \frac{2}{2} = \frac{1}{2} \times \frac{3}{3} = \frac{1}{2} \times \frac{4}{4} = \frac{1}{2} \times \frac{5}{5} = \cdots$

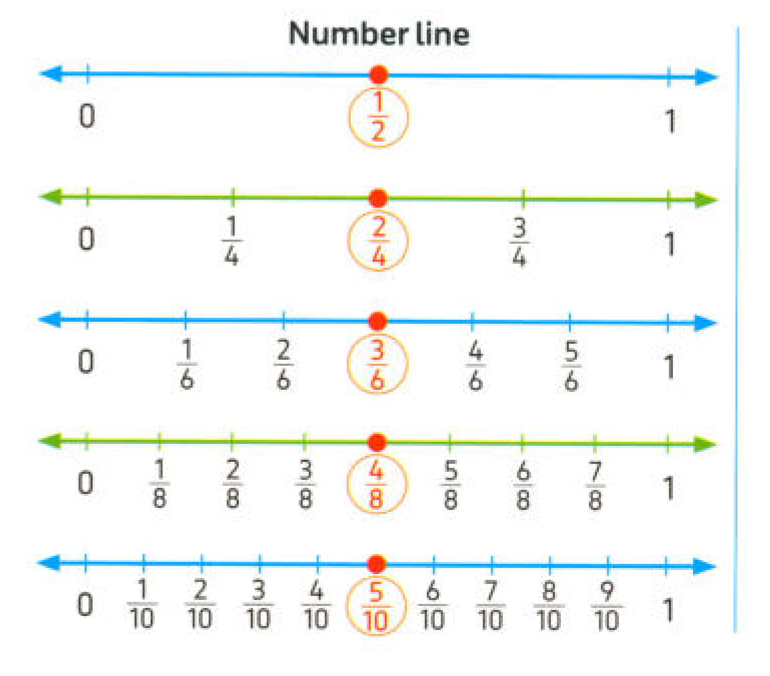
$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \cdots$$



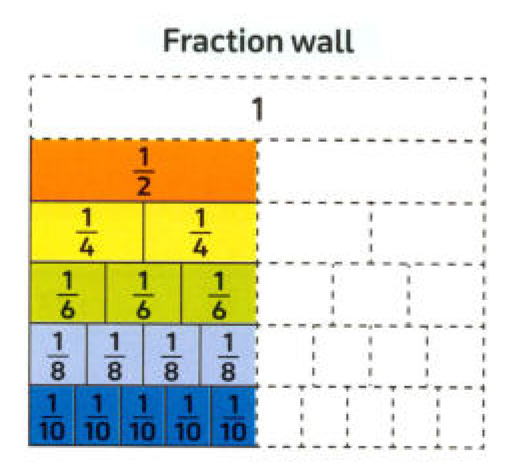
$\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$ and $\frac{5}{10}$ are all equivalent fractions.

- You can use a number line and a fraction wall to show the equivalent fractions.

Number line



Fraction wall



$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$$

- Your child can use multiply by 1 to find more equivalent fractions.

Learn 2 How can you find equivalent fractions using multiplication or division ?

- You can multiply both the numerator and denominator of a fraction by any number except zero to find equivalent fractions.
- If the numerator and denominator have a common factor, you can also divide both by that factor to find an equivalent fraction.

Example 1

Find two fractions that are equivalent to $\frac{4}{8}$

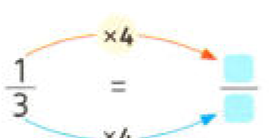
Solution 

One Way Use multiplication

Multiply both the numerator and denominator by the same non zero number.

The number 2 is easy to use, so multiply the numerator and denominator by 2.

$$\frac{4}{8} = \frac{4 \times 2}{8 \times 2} = \frac{8}{16}$$

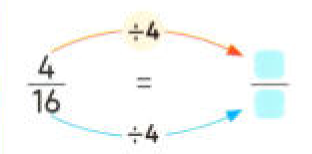


Another Way Use division

Divide both the numerator and denominator by the same non zero number.

The number 4 is a common factor, so divide the numerator and denominator by 4.

$$\frac{4}{8} = \frac{4 \div 4}{8 \div 4} = \frac{1}{2}$$



So, $\frac{4}{8}$, $\frac{8}{16}$ and $\frac{1}{2}$ are all equivalent fractions.

More examples :

$\frac{1}{2} \xrightarrow{\times 2} = \frac{2}{4}$ (×2)

$\frac{2}{5} \xrightarrow{\times 3} = \frac{6}{15}$ (×3)

$\frac{8}{12} \xrightarrow{\div 4} = \frac{2}{3}$ (÷4)

$\frac{6}{10} \xrightarrow{\div 2} = \frac{3}{5}$ (÷2)

Check your understanding

Complete to find equivalent fractions.

a. $\frac{1}{3}$ (×4) = $\frac{\square}{\square}$ (×4)

b. $\frac{3}{6}$ (÷3) = $\frac{\square}{\square}$ (÷3)

c. $\frac{2}{7}$ (×2) = $\frac{\square}{\square}$ (×2)

d. $\frac{4}{16}$ (÷4) = $\frac{\square}{\square}$ (÷4)

Notes for parents :

- Give your child a fraction as $\frac{8}{12}$, ask him/her to find equivalent fractions, once by multiplication and another by division.



Learn 3 How to find the missing numerator or denominator in equivalent fractions ?

To find the missing numerator, decide if the denominator is multiplied or divided by a number, then do the same with numerator.

Example 2

Find the missing numerator or denominator.

a. $\frac{2}{5} = \frac{\quad}{15}$

b. $\frac{8}{12} = \frac{4}{\quad}$

Solution

a.

5 is multiplied by 3 to be 15

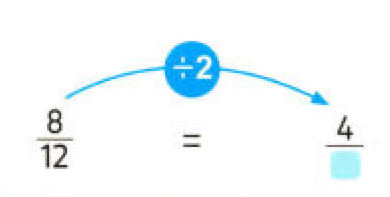
$\frac{2}{5} = \frac{\square}{15}$ (×3)

Multiply 2 by 3 also , you will get 6 in the numerator

$\frac{2}{5} = \frac{6}{15}$ (×3)

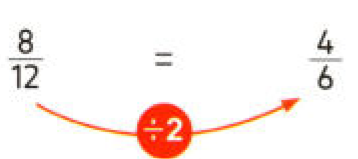
b.

8 is divided by 2 to be 4





Divide 12 by 2 also , you will get 6 in the denominator



Check your understanding

Complete.

a. $\frac{2}{3} = \frac{\square}{9}$

b. $\frac{4}{6} = \frac{12}{\square}$

c. $\frac{3}{6} = \frac{\square}{2}$

d. $\frac{2}{7} = \frac{\square}{14}$

e. $\frac{8}{10} = \frac{4}{\square}$

f. $\frac{\square}{6} = \frac{10}{12}$

• Ask your child how he/she find the missing numerator in ($\frac{1}{5} = \frac{?}{10}$) and how he/she find the missing denominator in ($\frac{12}{15} = \frac{4}{?}$).

Example 3

Amgad has 12 marbles. $\frac{2}{3}$ of them are red.

What is the number of red marbles does Amgad have ?



Solution 

$$\frac{2}{3} \underset{\times 4}{\overset{\times 4}{=}} \frac{?}{12}$$

$$\frac{2}{3} = \frac{8}{12}$$

The number of red marbles is 8 marbles.



Check your understanding

Mai baked 24 pieces of cake. If $\frac{3}{4}$ of them are with chocolate cake.

What is the number of chocolate cake she baked ?

....

....

Enrich your knowledge — Simplest form

▸ A fraction is in **simplest form** when 1 is the only number that divides both the numerator and the denominator with no remainder.

These fractions are in simplest form.	These fractions are not in simplest form.
$\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{8}$ $\frac{2}{7}$ $\frac{5}{9}$	$\frac{2}{4}$ $\frac{4}{8}$ $\frac{3}{15}$ $\frac{6}{9}$ $\frac{8}{12}$

Bassem and Marwan both used equivalent fractions to write $\frac{12}{18}$ in simplest form.

Bassem

$$\frac{12}{18} = \frac{12 \div 2}{18 \div 2} = \frac{6}{9}$$

$$\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$$

$\frac{2}{3}$ is in simplest form.

Could Bassem have divided by 3 first ?

Marwan

$$\frac{12}{18} \underset{\div 6}{\overset{\div 6}{=}} \frac{2}{3}$$

$\frac{2}{3}$ is in simplest form.

6 is the greatest common factor between 12 and 18

$\frac{2}{3}$ is in simplest form because 1 is the only number that can divide both 2 and 3 with no remainder.

Notes for parents :

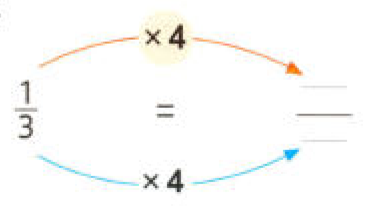
• Ask your child to read the story problem carefully, then plane and solve.

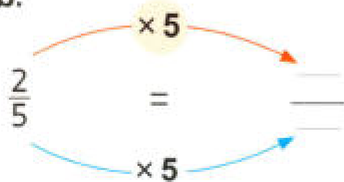
Exercise 7
on lessons 12 to 14

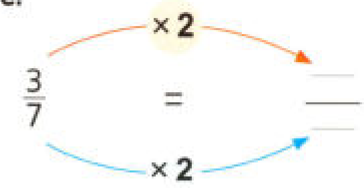
- Equivalent Fractions Using the Identity Property
- Equivalent Fractions Using Multiplications and Division
- Find the Missing in Equivalent Fractions

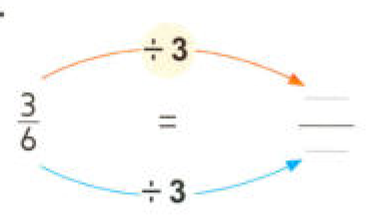
REMEMBER UNDERSTAND APPLY PROBLEM SOLVING | From the school book

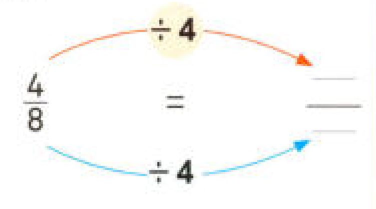
1. Complete to find an equivalent fraction.

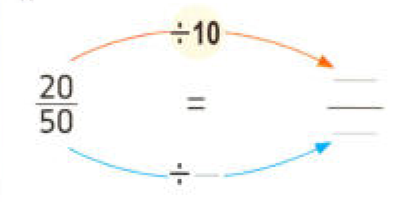
a. 

b. 

c. 

d. 

e. 

f. 

2. Complete.

a. $\frac{2}{3} \times \frac{4}{4} =$ ....

b. $\frac{3}{4} \times \frac{2}{2} =$ .... [El-Monofia - Ashmon 22]

c. $\frac{6}{7} \times \frac{3}{3} =$ ....

d. $\frac{9}{11} \times \frac{2}{2} =$ ....

e. $\frac{7}{9} \times \frac{8}{8} =$ ....

f. $\frac{8}{13} \times \frac{10}{10} =$ ....

g. $\frac{5}{8} \times \frac{\dots}{3} = \frac{15}{24}$ [Giza 22]

h. $\frac{4}{7} \times$ .... $= \frac{16}{28}$ [Cairo - El Sayda Zainab 22]

3. Find an equivalent fraction to each.

a. $\frac{1}{6} =$ ....

b. $\frac{2}{3} =$ ....

c. $\frac{4}{12} =$ ....

d. $\frac{2}{10} =$ ....

e. $\frac{10}{15} =$ ....

f. $\frac{4}{4} =$ ....

g. $\frac{20}{25} =$ ....

h. $\frac{7}{8} =$ ....

4. Write three equivalent fractions to each.

a. $\frac{2}{5}$ = —— = —— = ——

b. $\frac{4}{12}$ = —— = —— = ——

c. $\frac{4}{6}$ = —— = —— = ——

d. $\frac{4}{10}$ = —— = —— = ——

e. $\frac{3}{9}$ = —— = —— = ——

f. $\frac{4}{20}$ = —— = —— = ——

5. Generate at least 5 equivalent fractions for each fraction.

a. $\frac{2}{3}$; ______ ; ______ ; ______ ; ______ ; ______

b. ______ ; $\frac{2}{4}$; ______ ; ______ ; ______ ; ______

c. $\frac{3}{5}$; ______ ; ______ ; ______ ; ______ ; ______

d. ______ ; ______ ; $\frac{3}{9}$; ______ ; ______ ; ______

6. Determine whether each fraction pair is equivalent. If it is, write "true." If it is not, write "false."

a. $\frac{2}{3} = \frac{6}{9}$ ______

b. $\frac{15}{25} = \frac{4}{5}$ ______

c. $\frac{7}{8} = \frac{2}{3}$ ______

d. $\frac{3}{5} = \frac{6}{8}$ ______

e. $\frac{6}{10} = \frac{2}{5}$ ______

f. $\frac{1}{3} = \frac{4}{12}$ ______

g. $\frac{2}{8} = \frac{1}{4}$ ______

h. $\frac{9}{12} = \frac{2}{4}$ ______

i. $\frac{3}{8} = \frac{1}{6}$ ______

7. Find the missing numerator or denominator to make the fractions equivalent. Record what factor you multiplied or divided by.

a. $\frac{5}{9} = \frac{\square}{27}$ [Ismailia 23]

b. $\frac{2}{5} = \frac{\square}{25}$ [Giza 23]

c. $\frac{5}{8} = \frac{\square}{16}$ [Assiut 23, El-Monofia 23]

d. $\frac{3}{4} = \frac{\square}{12}$

e. $\frac{20}{25} = \frac{\square}{5}$

f. $\frac{5}{7} = \frac{\square}{21}$

g. $\frac{2}{9} = \frac{10}{\square}$

h. $\frac{5}{15} = \frac{15}{\square}$

i. $\frac{10}{70} = \frac{\square}{7}$

j. $\frac{12}{18} = \frac{4}{\square}$

k. $\frac{4}{7} = \frac{\square}{28}$ [El-Monofia 23]

l. $\frac{3}{18} = \frac{\square}{6}$ [Giza 23]

m. $\frac{7}{13} = \frac{21}{\square}$

n. $\frac{12}{20} = \frac{\square}{5}$ [Cairo - Middle 22]

o. $\frac{8}{10} = \frac{\square}{5}$ [Souhag 23]

p. $\frac{2}{3} = \frac{\square}{9}$ [El-Monofia 23, El-Menia 23]

q. $\frac{2}{3} = \frac{10}{\square}$ [Port Said 23]

r. $\frac{3}{5} = \frac{\square}{\square}$ [Giza 23]

s. $\frac{2}{3} = \frac{\square}{18}$ [El-Beheira 23]

t. $\frac{8}{10} = \frac{4}{\square}$ [Kafr El-Sheikh 23]

8. Find the value of X.

a. $\frac{9}{12} = \frac{X}{4}$

b. $\frac{18}{27} = \frac{2}{X}$

c. $\frac{X}{5} = \frac{15}{15}$

d. $\frac{X}{4} = \frac{2}{8}$

e. $\frac{10}{X} = \frac{2}{3}$

f. $\frac{X}{42} = \frac{1}{7}$

9. **Use the fraction wall to answer the questions.**

a. How many halves are in 1 whole ? ....

Using halves, how would you write 1 whole as a fraction ? ....

b. How many fourths are in 1 whole ? ....

Use fourths, how would you write 1 whole as a fraction ? ....

c. How many tenths are in 1 whole ? ....

Use tenths, how would you write 1 whole as a fraction ? ....

d. Explain the pattern and why each of the fractions you wrote equals 1 whole ? ....

1

$\frac{1}{2}$ $\frac{1}{2}$

$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

$\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$

$\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$

$\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$

$\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$

$\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$

$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$

$\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ $\frac{1}{11}$

$\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$

e. Using what you know, how many 25ths are in 1 whole ? ....

10. Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip.

How many cookies were chocolate chip ?

[**Hint :** $\frac{2}{3} = \frac{?}{9}$] [Suez - South 22]

....

....



11. Ahmed has 15 cakes. If $\frac{3}{5}$ of them are covered with chocolate.
How many chocolate cakes are there ? [Kafr El-Sheikh 23, Cairo 22]

....

....

12. Youssef has 18 apples. Two third of the apples are red.
How many apples are red ? [Cairo 23]



13. Sally's team won 10 of 15 games.
Fatma's team played 6 games and won the same fraction of their games as Sally's.
How many games did Fatma's team win ?
Explain your thinking.



14. Heba has two cakes that were the same size. She cut the first cake into 6 pieces and frosted 2 of the pieces with chocolate. She cut the second cake into 18 pieces.
If she wanted to frost the same fraction of the second cake with chocolate, how many pieces should she frost ?
How do you know ? Draw a fraction model if necessary.



15. Omar's Om Ali. Omar made a pan of Om Ali, his favorite dessert. The pan contains 12 equal servings.
Omar shares 3 servings with his friend Heba.
What is the simplest form of the fraction of the Om Ali Omar gave his friend ?





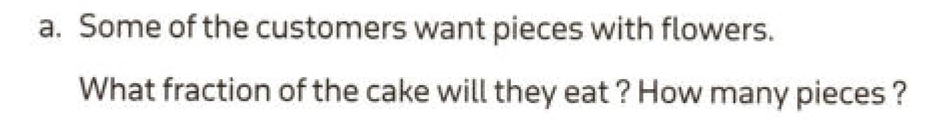
16. Nadia's cake. Nadia owns a bakery. She made a cake and decorated it as shown.

There are 12 equal pieces total :

6 pieces have flowers, 4 are plain with no decorations and the other 2 have something else.



Answer the questions based on Nadia's cake.



a. Some of the customers want pieces with flowers.
What fraction of the cake will they eat ? How many pieces ?

b. Some of the customers want pieces with no decorations. What fraction of the cake will they eat ? How many pieces ?

c. What fraction of the cake is left ?

d. If Nadia cuts all the pieces that are left into two, what fraction is left now ?

Challenge

17. I am a fraction. Each of $\frac{6}{18}$ and $\frac{10}{30}$ is equivalent to me.

Each of my numerator and my denominator is less than 5. **Who am I ?** ______



Multiple Choice Questions

Choose the correct answer.

1. $\frac{1}{3} = \frac{\square}{9}$ [Giza 23]

A. 2 B. 7
C. 3 D. 4

2. $\frac{5}{8} = \frac{\square}{16}$ [Alex. 23]

A. 5 B. 10
C. 12 D. 13

3. $\frac{2}{3} = \frac{\square}{9}$ [Kafr El-Sheikh 23]

A. 2 B. 9
C. 18 D. 6

4. $\frac{3}{4} = \frac{\square}{8}$ [El-Beheira 23]

A. 2 B. 4
C. 6 D. 8

5. Which number fits in the blank?
$\frac{2}{3} = \frac{18}{\square}$ [Giza - 6th october 22]

A. 6 B. 9
C. 19 D. 27

6. The fraction $\frac{5}{6}$ is equivalent to ______ [El-Monofia 23]

A. $\frac{10}{6}$ B. $\frac{10}{18}$
C. $\frac{25}{30}$ D. $\frac{5}{12}$

7. The fraction $\frac{1}{2}$ is equivalent to ______ [El-Beheira 23]

A. $\frac{1}{3}$ B. $\frac{3}{6}$
C. $\frac{2}{5}$ D. $\frac{3}{8}$

8. Which fraction is Not equivalent to $\frac{3}{9}$? [Giza 22]

A. $\frac{6}{12}$ B. $\frac{5}{15}$
C. $\frac{2}{6}$ D. $\frac{1}{3}$

9. Which of the following is true? [Kafr El-Sheikh 23]

A. $\frac{5}{15} = \frac{1}{3}$ B. $\frac{1}{16} = \frac{3}{18}$
C. $\frac{7}{8} = \frac{8}{7}$ D. $\frac{3}{13} = \frac{4}{4}$

10. Which of the following statement is NOT true?

A. $\frac{5}{15} = \frac{1}{3}$ B. $\frac{1}{6} = \frac{3}{18}$
C. $\frac{7}{8} = \frac{8}{7}$ D. $\frac{3}{3} = \frac{4}{4}$

11. Which of the following shows the identity property of multiplication?

A. 0×4 B. $\frac{2}{3} \times 1$
C. $\frac{4}{5} \times \frac{5}{4}$ D. $\frac{5}{7} + 0$

12. What is the product of $\frac{3}{5} \times \frac{3}{3}$?

A. $\frac{3}{5}$ B. $\frac{6}{8}$
C. $\frac{3}{15}$ D. $\frac{9}{5}$

Lesson
15 Multiplying by a Whole



Learn How to multiply a fraction by a whole number ?





Remember

Multiplication is a repeated addition.

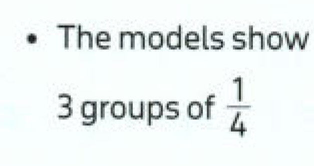
For example : $3 \times 4 = 3 + 3 + 3 + 3 = 12$

Problem

Eman drinks $\frac{1}{4}$ bottle of milk every day.

How much milk does she drink in 3 days ?







- The models show 3 groups of $\frac{1}{4}$

$\frac{1}{4}$			
$\frac{1}{4}$			
$\frac{1}{4}$			

- You can use one model to show the answer.

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	

$\frac{3}{4}$

- **Also, you can use repeated addition :** $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$

  or you can use multiplication : $3 \times \frac{1}{4} = \frac{3}{4}$

Note that

- $3 \times \frac{1}{4} \neq 3\frac{1}{4}$ but : $3 \times \frac{1}{4} = \frac{3}{4}$
- $3 + \frac{1}{4} = 3\frac{1}{4}$



Remark

When you multiply a proper fraction and a whole number [except 0 and 1], the product is less than the whole number factor, but greater than the fraction factor.

For example :

$3 \times \frac{1}{4} = \frac{3}{4}$ $\quad [\frac{3}{4} < 3$, but: $\frac{3}{4} > \frac{1}{4}]$

Notes for parents :

- Explain that the properties of multiplication of whole numbers are applied to fractions.
- Remind your child that when we multiply a fraction and a whole number (except 0 and 1), the product is less than the whole number factor, but greater than the fraction factor. This is different from multiplying whole numbers because the product is always greater than either factor.



Example 1

Draw a bar model and write an addition and multiplication sentence for each of the following fractions.

a. $\frac{3}{5}$ b. $\frac{2}{7}$ c. $\frac{4}{6}$

Solution

		Model	Addition sentence	Multiplication sentence
a.	$\frac{3}{5}$	(3 of 5 parts shaded)	$\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{3}{5} = 3 \times \frac{1}{5}$
b.	$\frac{2}{7}$	(2 of 7 parts shaded)	$\frac{2}{7} = \frac{1}{7} + \frac{1}{7}$	$\frac{2}{7} = 2 \times \frac{1}{7}$
c.	$\frac{4}{6}$	(4 of 6 parts shaded)	$\frac{4}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$	$\frac{4}{6} = 4 \times \frac{1}{6}$

Example 2

Multiply

a. $5 \times \frac{1}{7} =$ ______ b. $\frac{1}{3} \times 3 =$ ______ c. $10 \times \frac{1}{5} =$ ______

d. $\frac{3}{4} \times 2 =$ ______ e. $\frac{2}{9} \times 4 =$ ______ f. $3 \times \frac{3}{5} =$ ______

Solution

a. $5 \times \frac{1}{7} = \frac{5}{7}$

b. $\frac{1}{3} \times 3 = \frac{3}{3} = 1$

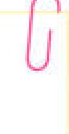
c. $10 \times \frac{1}{5} = \frac{10}{5} = 2$

d. $\frac{3}{4} \times 2 = \frac{3}{4} + \frac{3}{4} = \frac{6}{4}$

e. $\frac{2}{9} \times 4 = \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \frac{8}{9}$

f. $3 \times \frac{3}{5} = \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{9}{5}$

Note that



- To evalute $\frac{2}{9} \times 4$ multiply the numerator of the fraction by the whole number as follows : $\frac{2}{9} \times 4 = \frac{2 \times 4}{9} = \frac{8}{9}$

More examples : $\frac{3}{4} \times 2 = \frac{3 \times 2}{4} = \frac{6}{4}$ and $3 \times \frac{3}{5} = \frac{3 \times 3}{5} = \frac{9}{5}$

Notes for parents :

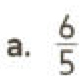
- $\frac{2}{6} \times 2 = \frac{4}{6}$, this may be a bit more challenging, but the addition equation and a bar model may clarify.

Example 3

Complete.

a. $\frac{3}{5} \times 2 =$ ______ | b. $\frac{4}{10} \times 3 =$ ______ | c. $\frac{2}{7} \times 3 =$ ______

Solution



a. $\frac{6}{5}$ | b. $\frac{12}{10}$ | c. $\frac{6}{7}$

Example 4

At a birthday party, there were 5 children. If each child ate $\frac{2}{9}$ of a pizza, how many pizzas were eaten ?

Solution

Number of pizzas $= \frac{2}{9} \times 5$

$= \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \frac{10}{9}$ pizzas.

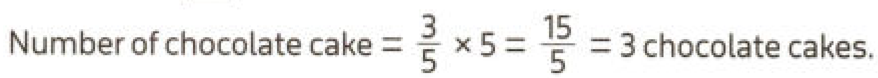
Another way :

$\frac{2}{9} \times 5 = \frac{2 \times 5}{9} = \frac{10}{9}$ pizzas

Example 5

Ahmed has 5 cakes , $\frac{3}{5}$ of them are chocolate. How many chocolate cake are there ?

Solution



Number of chocolate cake $= \frac{3}{5} \times 5 = \frac{15}{5} = 3$ chocolate cakes.

Check your understanding

1. Draw a bar model and write an addition and multiplication sentence for $\frac{3}{8}$.

2. Multiply.

a. $\frac{1}{4} \times 5 =$ ______ b. $3 \times \frac{1}{9} =$ ______ c. $\frac{2}{5} \times 2 =$ ______

3. Eman has 10 cakes , $\frac{1}{5}$ of them are chocolate. How many chocolate cakes are there ?

______

Exercise 8 on lesson 15

Multiplying by a Whole

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING | From the school book

1. Color the bar model and write an addition and multiplication sentence for each of the following fractions.

a. $\frac{2}{5}$

Addition sentence : ....

Multiplication sentence : ....

b. $\frac{3}{7}$

Addition sentence : ....

Multiplication sentence : ....

c. $\frac{5}{8}$

Addition sentence : ....

Multiplication sentence : ....

d. $\frac{4}{6}$

Addition sentence : ....

Multiplication sentence : ....

2. Write the fraction which represents the colored parts for each bar model and write an addition and multiplication sentence for each fraction.

a.

Fraction : ....

Addition sentence : ....

Multiplication sentence : ....

b.

Fraction : ....

Addition sentence : ....

Multiplication sentence : ....

c.

Fraction : ....

Addition sentence : ....

Multiplication sentence : ....

d.

Fraction : ....

Addition sentence : ....

Multiplication sentence : ....

3. Draw a bar model for each of the following sentence.

a. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

b. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

c. $4 \times \frac{1}{9}$

d. $\frac{1}{3} \times 5$

4. Complete each of the following.

a. $\frac{1}{8} \times 7 =$ .... [Alex. 23]

b. $7 \times \frac{1}{9} =$ .... [Kafr El-Sheikh 23]

c. $4 \times \frac{1}{9} =$ .... [El-Beheira 23]

d. $8 \times \frac{1}{9} =$ ....

e. $\frac{1}{4} \times 3 =$ ....

f. $4 \times \frac{1}{5} =$ .... [El-Beheira 23]

g. $\frac{1}{3} \times 3 =$ ....

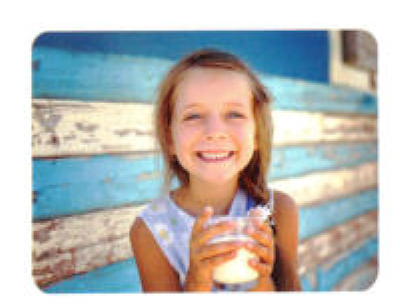
h. $\frac{3}{7} \times 3 =$ .... [Ismailia 23]

i. $3 \times \frac{2}{9} =$ .... [El-Monofia 23]

5. Match.

a.	$\frac{1}{5} + \frac{1}{5}$	1.	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$
b.	$5 \times \frac{1}{2}$	2.	1
c.	$5 \times \frac{1}{3}$	3.	$2 \times \frac{1}{5}$
d.	$2 \times \frac{1}{2}$	4.	$3 \times \frac{1}{5}$
e.	$\frac{1}{5} \times 3$	5.	$1\frac{2}{3}$

6. Sally drinks $\frac{1}{5}$ of a carton of milk each day.
How much milk does she drink in 4 days ?
Express your answer as a sum of unit fractions,
and as an equivalent multiplication sentence.
Draw a bar model if necessary.



7. If it takes $\frac{2}{6}$ of a bag of flour for a cookie recipe,
how much flour will it take to double the recipe ?



8. Khalid ate $\frac{1}{6}$ from the candy box, so if there were 24 pieces
in the box, how many pieces did Khalid eat ? [Aswan 23]



9. Sahar has 9 cakes, $\frac{2}{3}$ of them are chocolate.
How many chocolate cakes are there ? [Alex. 23]



10. The day is 24 hours, how many hours are there in $\frac{1}{3}$ day ?
[Giza 23]

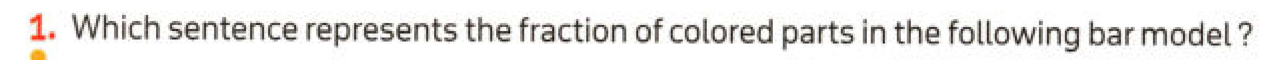


Challenge

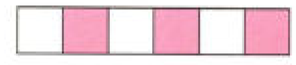
11. What do you notice about the factors and product when you multiply a proper fraction by a whole number ?
How is this different from multiplying a whole number by a whole number ?

Multiple Choice Questions

Choose the correct answer.



1. Which sentence represents the fraction of colored parts in the following bar model?



A. $6 \times \frac{1}{3}$ B. $\frac{1}{3} \times 3$ C. $3 + \frac{1}{6}$ D. $3 \times \frac{1}{6}$

2. $1 \times \frac{3}{7} =$ .... [Alex. 23]

A. $1\frac{3}{7}$ B. $\frac{3}{7}$ C. $\frac{7}{3}$ D. 1

3. $\frac{5}{6} \times 0 =$ .... [Alex. 23]

A. $\frac{5}{6}$ B. 0 C. 1 D. $\frac{6}{5}$

4. $3 \times \frac{1}{7} =$ .... [Giza 23]

A. $3\frac{1}{7}$ B. $\frac{31}{7}$ C. $\frac{3}{7}$ D. $\frac{1}{7}$

5. $7 \times \frac{1}{10} =$ ....

A. $7\frac{1}{10}$ B. 70 C. $\frac{2}{10} + \frac{5}{10}$ D. $\frac{7}{70}$

6. $7 \times \frac{1}{4} =$ .... [Ismailia 23]

A. $\frac{7}{4}$ B. $\frac{7}{28}$ C. $\frac{1}{28}$ D. $7\frac{1}{4}$

7. $4 \times \frac{1}{5} =$ .... [Luxor 23]

A. $\frac{1}{5}$ B. $\frac{4}{5}$ C. $\frac{3}{7}$ D. $\frac{5}{8}$

8. $\frac{1}{4} \times 5 =$ .... [El-Beheira 23]

A. $\frac{5}{4}$ B. $\frac{4}{5}$ C. $\frac{1}{4}$ D. $\frac{1}{5}$

9. $\frac{1}{8} \times 5 =$ .... [Port Said 23]

A. $\frac{5}{8}$ B. 5 C. 40 D. $\frac{5}{40}$

10. $\frac{1}{6} + \frac{1}{6} =$ ....

A. $6 \times \frac{1}{2}$ B. $2 \times \frac{1}{6}$ C. 6×2 D. $\frac{1}{2}$

11. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ....

A. $\frac{4}{20}$ B. $\frac{1}{5} \times 4$ C. $\frac{11}{5}$ D. $1\frac{1}{5}$

Unit Nine Assessment



1 Choose the correct answer.

1. $\frac{3}{8}=$ ______
   A. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ B. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$ C. $\frac{2}{8}+1$ D. $\frac{1}{8}+2$

2. $\frac{14}{3}=$ ______ as a mixed number.
   A. $4\frac{1}{3}$ B. $3\frac{2}{4}$ C. $4\frac{2}{3}$ D. $2\frac{2}{3}$

3. $\frac{3}{8}>$ ______
   A. $\frac{3}{4}$ B. $\frac{5}{8}$ C. $1\frac{1}{8}$ D. $\frac{1}{8}$

4. Which of the following is the least ?
   A. $\frac{4}{9}$ B. $\frac{7}{9}$ C. $\frac{2}{9}$ D. 1

5. $2\frac{3}{7}=$ ______ "as an improper fraction."
   A. $\frac{17}{3}$ B. $\frac{17}{7}$ C. $\frac{14}{7}$ D. $\frac{11}{7}$

6. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=$ ______
   A. $\frac{4}{5}$ B. $\frac{111}{5}$ C. $3\times\frac{1}{5}$ D. $\frac{3}{15}$

7. $\frac{7}{8}=$ ______
   A. $\frac{21}{11}$ B. $\frac{14}{16}$ C. $1\frac{7}{4}$ D. $\frac{14}{24}$

2 Complete.

1. $7\frac{3}{9}-$ ______ $=4\frac{1}{9}$
2. $\frac{5}{8}=\frac{}{40}$
3. ______ $-2\frac{1}{5}=3\frac{3}{5}$
4. $5\frac{1}{6}+1\frac{4}{6}=$ ______
5. $2+\frac{1}{7}+3+\frac{3}{7}=$ ______
6. $2-\frac{2}{9}=$ ______
7. $5\times\frac{1}{4}=\frac{3}{4}+$ ______
8. $6\frac{1}{7}-2\frac{3}{7}=$ ______

3 Choose the correct answer.

1. $\frac{5}{7}>$ ______
   A. $\frac{7}{7}$ B. $\frac{6}{7}$ C. $\frac{1}{7}$ D. 1

2. Which fraction is equivalent to $\frac{4}{12}$?

A. $\frac{8}{20}$ B. $\frac{2}{9}$ C. $\frac{1}{4}$ D. $\frac{3}{9}$

3. Sameh has 20 cakes. If $\frac{3}{5}$ of them are covered with chocolate, then the number of chocolate cakes = ______ cakes.

A. 10 B. 13 C. 12 D. 17

4. The bar model that represents the fraction of the colored parts of the multiplication sentence $2 \times \frac{1}{5}$ is ______

A. B. C. D.

5. $\frac{2}{3} = \frac{__}{9}$

A. 1 B. 4 C. 6 D. 8

6. $\frac{3}{8} <$ ______

A. $\frac{3}{10}$ B. $\frac{3}{9}$ C. $\frac{3}{12}$ D. $\frac{3}{7}$

7. Peter ate $\frac{4}{6}$ of his chocolate bar. The fraction of the remaind part is ______

A. $\frac{2}{3}$ B. $\frac{1}{6}$ C. $\frac{4}{6}$ D. $\frac{1}{3}$

4 Answer the following.

1. Sara is making pancake batter. The recipe calls for $\frac{7}{10}$ of a jug of milk, and she only has $\frac{2}{10}$ of a jug of milk. How much more milk does Sara need to make the pancake batter?

______

______

2. Arrange the following fractions from the greatest to the least.

$\frac{7}{9}, \frac{4}{9}, \frac{9}{9}, \frac{1}{9}, \frac{5}{9}$

______

3. Use the benchmark fractions 0, $\frac{1}{2}$ and 1 to order the following fractions from least to greatest.

$\frac{3}{8}, \frac{7}{9}, \frac{5}{10}$

______

4. Hagar used $3\frac{4}{6}$ kg of meat. Amal used $2\frac{2}{6}$ kg of meat. What is the total amount of meat did they use altogether?

______

THEME THREE

Fractions, Decimals, and Porportional Relationships

UNIT 10

Decimals

- **Concept 1 :** Understanding Decimals
- **Concept 2 :** Decimals and Fractions
- **Concept 3 :** Operations on Decimals



Fast Fact

Each goal in a football game consists of two upright posts and joined at the top by a horizontal crossbar. The distance between the posts is 7.32 m and the distance from the lower edge of the crossbar to the ground is 2.44 m.

Concept 1

Understanding Decimals



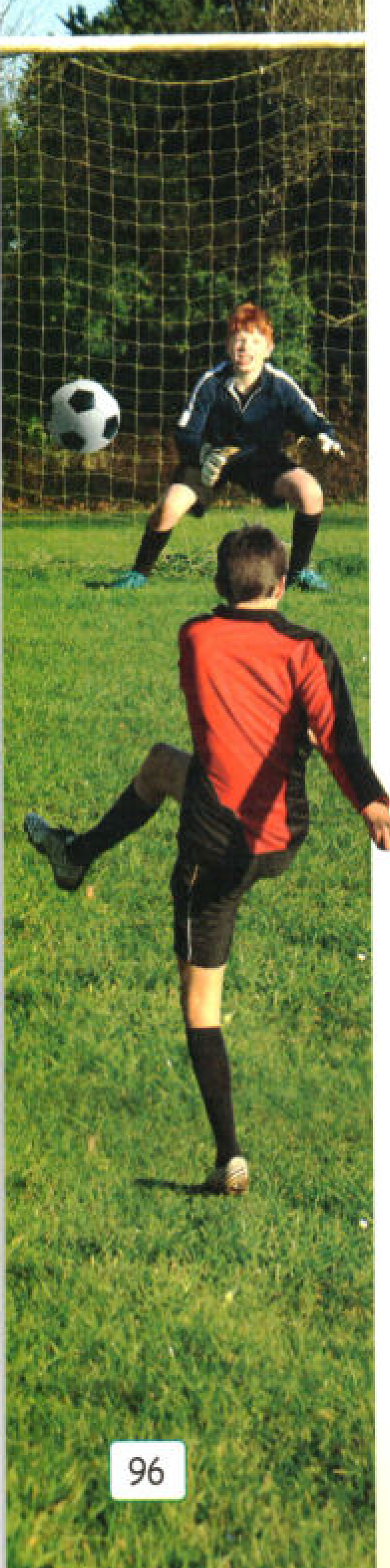


Lesson No.	Lesson Name	Learning Objectives
Lessons 1 & 2	Let's Explore Decimals	• Students will define decimal fractions. • Students will create visual models of Tenths.
	Hundredths	• Students will create visual models of Hundredths.
Lessons 3 & 4	The Place Value	• Students will name the place value of decimals to the Hundredths place. • Students will identify the value of a digit to the Hundredths place.
	Decimals in Different Forms	• Students will write decimals to the Hundredths place in standard, word, unit, and expanded form.

Lessons 1 & 2

▸ Let's Explore Decimals
▸ Hundredths

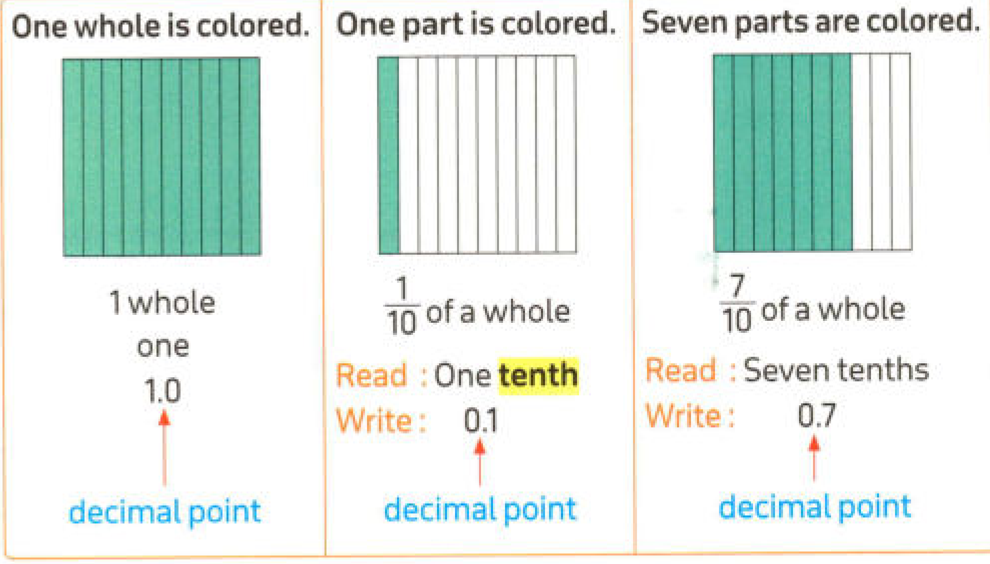




Learn 1 Exploring Tenths

- One way to show parts of a whole is to use fractions. Another way is to use decimals.
- A **decimal** is a number with one or more digits to the right of the **decimal point**.

- **Look at the models below. Each model has 10 equal parts :**



One whole is colored.	One part is colored.	Seven parts are colored.
		
1 whole one 1.0 ↑ decimal point	$\frac{1}{10}$ of a whole Read : One **tenth** Write : 0.1 ↑ decimal point	$\frac{7}{10}$ of a whole Read : Seven tenths Write : 0.7 ↑ decimal point

For example :

Ahmed plays in a football school team.

He trains to kick penalties.

He scored 8 goals of 10 tries.



Model	Fraction	Decimal
	Write : $\frac{8}{10}$ Read : Eight tenths	Write : 0.8 Read : Eight tenths

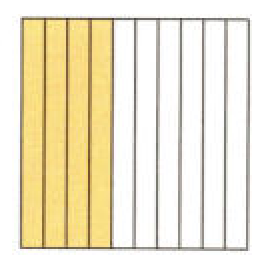
So, Ahmed scored $\frac{8}{10}$ or 0.8 of his tries.

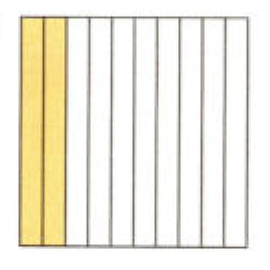
Notes for parents :

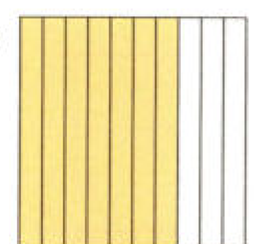
- Explain that the fraction $\frac{7}{10}$ and the decimal 0.7 name the same amount.

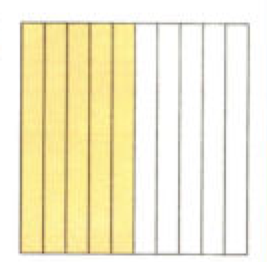
Example 1

Write the fraction and decimal for the colored part.

a. 

b. 

c. 

d. 

Solution 

a. $\frac{4}{10}$, 0.4

b. $\frac{2}{10}$, 0.2

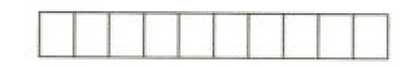
c. $\frac{7}{10}$, 0.7

d. $\frac{5}{10}$, 0.5

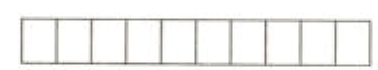
Example 2

Color to represent each of the following decimals.

a. 0.5



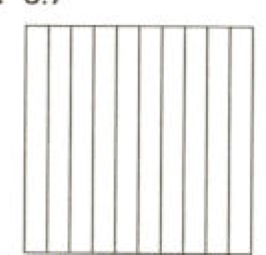
b. 0.3



c. 0.6



d. 0.9

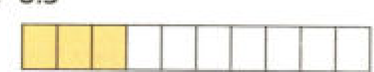


Solution 

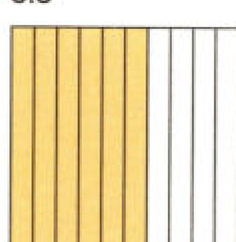
a. 0.5



b. 0.3



c. 0.6



d. 0.9

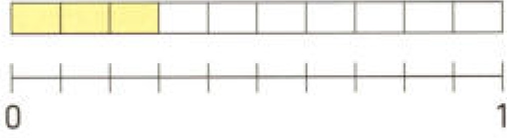


• Let your child understand that each figure is divided into 10 equal parts. This is why the denominator of the fraction is 10.

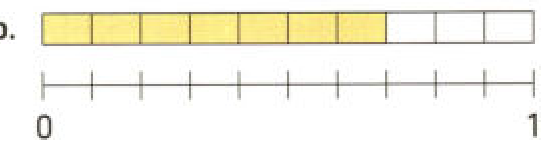
Example 3

Write the fraction and decimal which represent the colored parts and represent it on the number line.

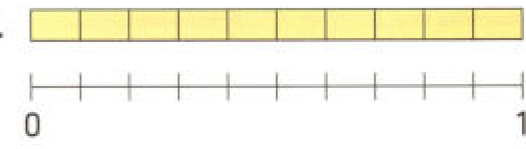
a.



b.

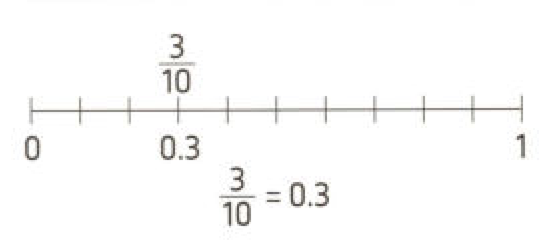


c.

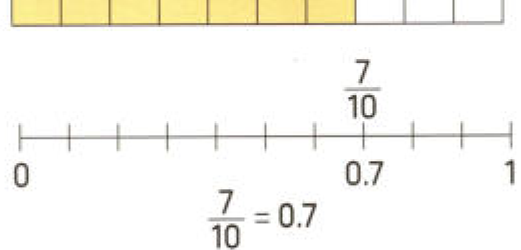


Solution 

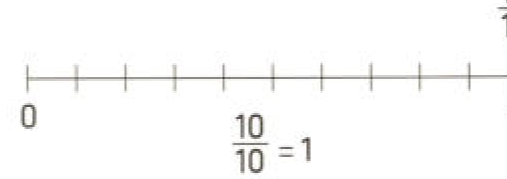
a.



b.



c.



Remarks

- 1 meter (m) = 10 decimeters (dm)
  so, 1 dm = $\frac{1}{10}$ m = 0.1 m
- 1 decimeter (dm) = 10 centimeters (cm)
  so, 1 cm = $\frac{1}{10}$ dm = 0.1 dm
- 1 centimeter (cm) = 10 millimeters (mm)
  so, 1 mm = $\frac{1}{10}$ cm = 0.1 cm

Check your understanding

1. Write each fraction as a decimal.

a. $\frac{9}{10}$ = ... b. $\frac{2}{10}$ = ... c. $\frac{8}{10}$ = ... d. $\frac{6}{10}$ = ...

2. Write each decimal as a fraction.

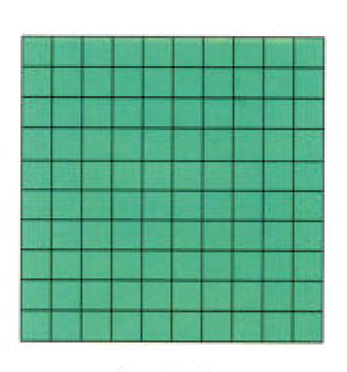
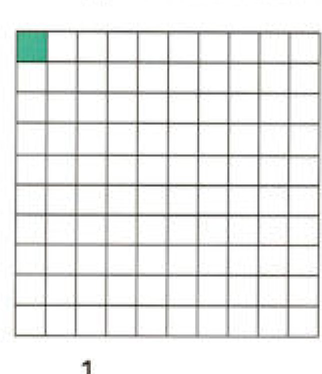
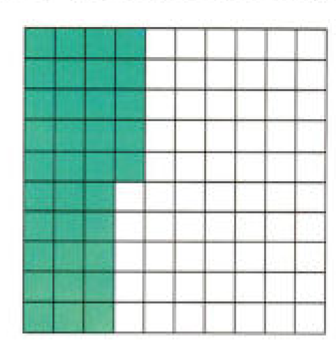
a. 0.7 = ... b. 0.1 = ... c. 0.5 = ... d. 0.4 = ...

Notes for parents :

- Select one exercise from this page and ask your child how he / she solved it.

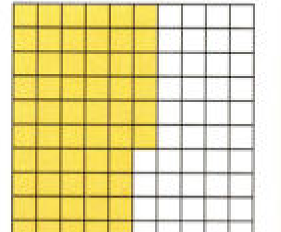
Learn 2 Exploring Hundredth

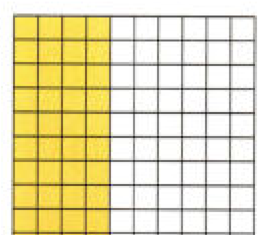
• Look at the models below. Each model has 100 equal parts :

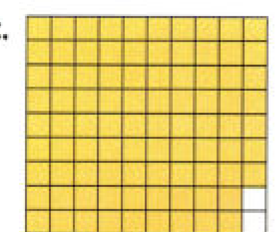
One whole is colored.	One part is colored.	Thirty-five parts are colored.
		
1 whole one	$\frac{1}{100}$ of a whole Read : One hundredths Write : 0.01	$\frac{35}{100}$ of a whole Read : Thirty-five hundredths Write : 0.35

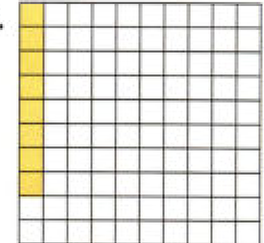
Example 4

Write the decimal that represents each colored part.

a. 

b. 

c. 

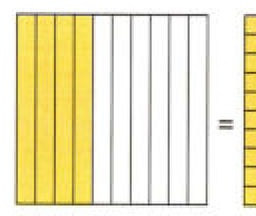
d. 

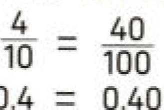
Solution 

a. 0.56 b. 0.40 c. 0.97 d. 0.08

Remark

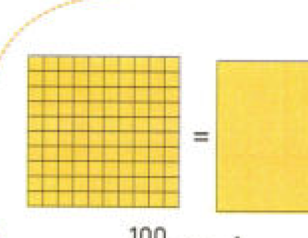
You can name the same amount in different ways.

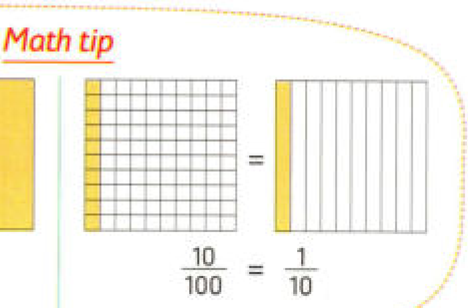




$\frac{4}{10} = \frac{40}{100}$

$0.4 = 0.40$





Math tip

$\frac{100}{100} = 1$

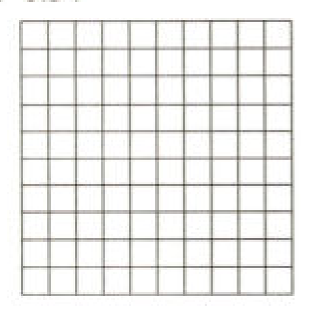
$\frac{10}{100} = \frac{1}{10}$

• Make sure your child understand that there are 100 squares on each grid. This is why the denominator of the fraction is 100.

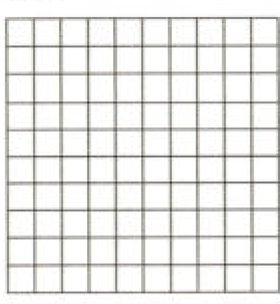
Example 5

Color each of the following grids to represent the following decimals.

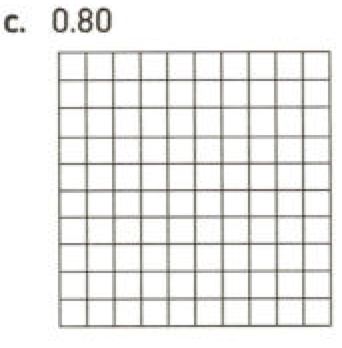
a. 0.34



b. 0.07



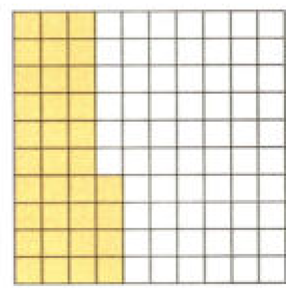
c. 0.80



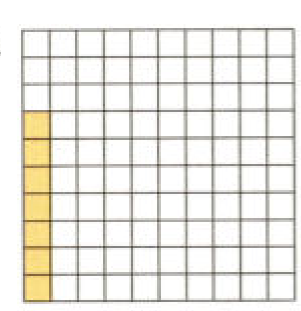
Solution



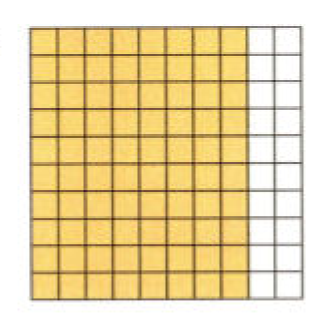
a.



b.



c.



Remark

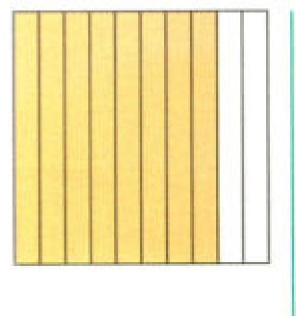
- 1 meter = 100 cm

  Then , 1 cm = $\frac{1}{100}$ m = 0.01 m

Check your understanding

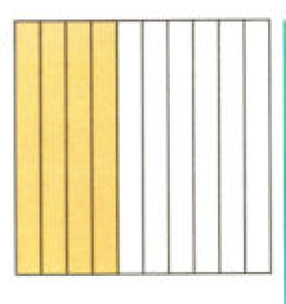
Write the fraction and the decimal to name each colored part.

a.



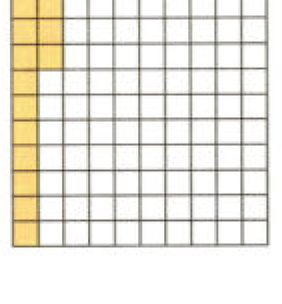
____

b.



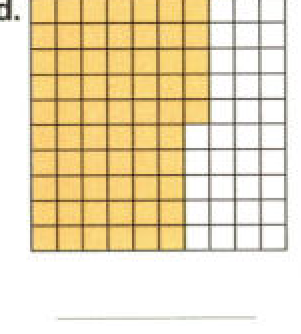
____

c.



____

d.



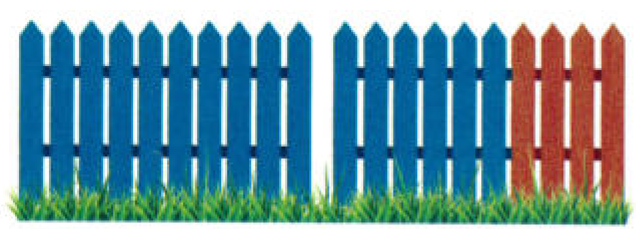
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Notes for parents :

- Select one exercise from this page and ask your child explain how he/she solved it.

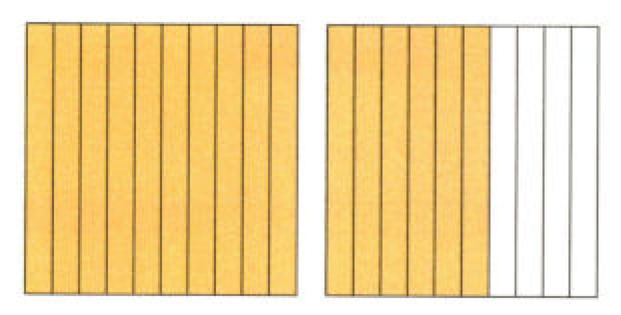
Learn 3 Decimals greater than one

Problem



Mr. Bassem is painting the fence around his yard. There are 10 sections. Each section has 10 boards. Mr. Bassem painted 16 boards so far.

What decimal shows how many sections he has painted ?



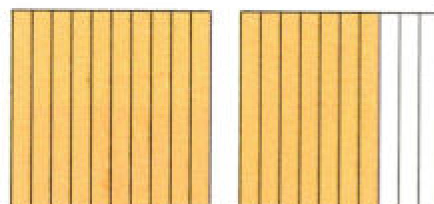
Write : 1.6
Read : One and six tenths.

So, Mr. Bassem has painted 1.6 sections of fence.

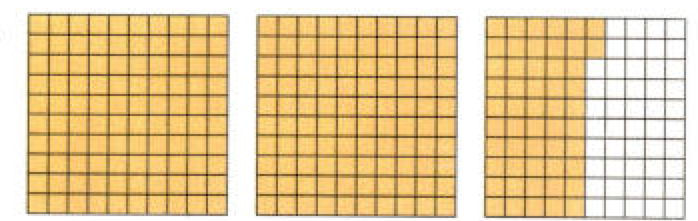
Example 6

Write the decimal for the colored part.

a.



b.



Solution 

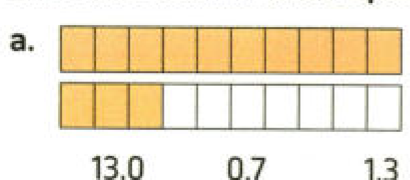
a. 1.7

b. 2.52

 your understanding

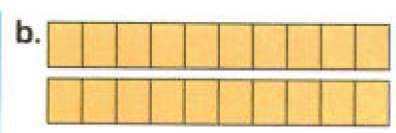
Circle the decimal that represents the colored parts.

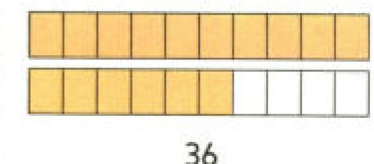
a.



13.0 0.7 1.3

b.





4 3.6 36

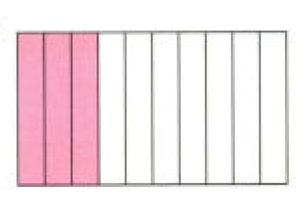
• Challenge your child how he/she can write 2.7 as a fraction.

Exercise 9
on lessons 1 & 2

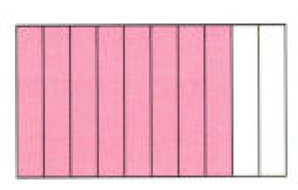
- Let's Explore Decimals
- Hundredths

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING | From the school book

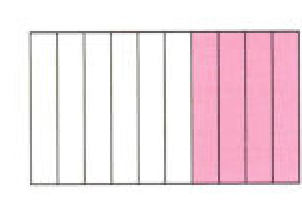
1. Write the decimal to name each colored parts.

a. 

____

b. 

____

c. 

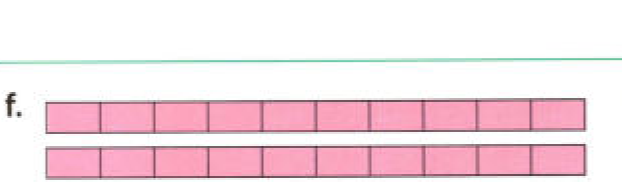
____

d.

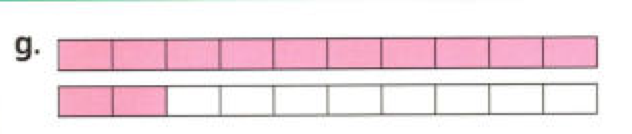
____

e.

____

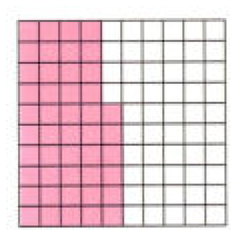
f. 

____

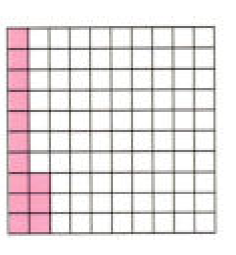
g. 

____

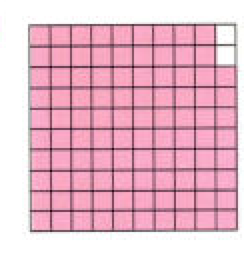
2. Record what decimal is shown.

a. 

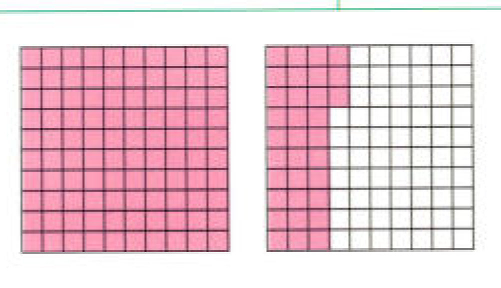
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b. 

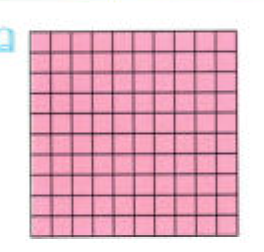
____

c. 

____

d. 

____

e. 

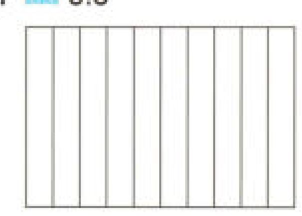
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3. Shade in the model to represent the decimal.

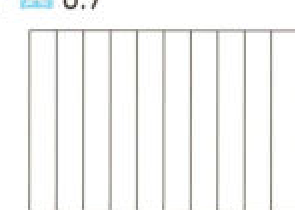
a. 0.2



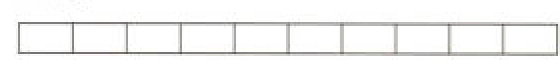
b. 0.6



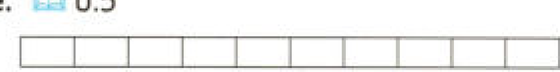
c. 0.9



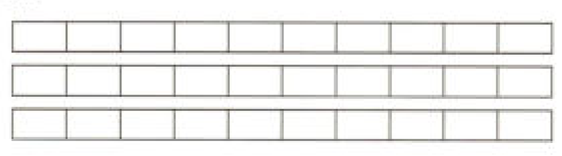
d. 0.7



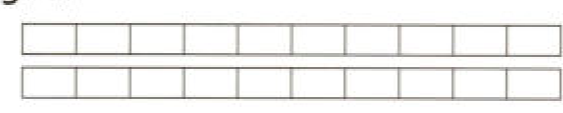
e. 0.5



f. 2.4

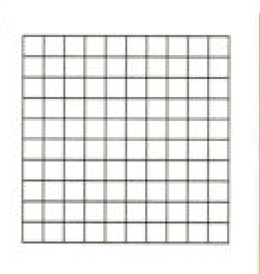


g. 1.7

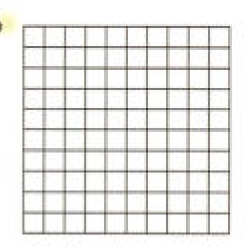


4. Shade in the grids to show the decimal stated.

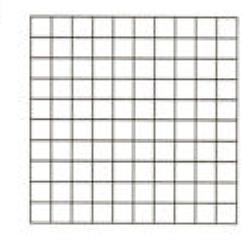
a. 0.06



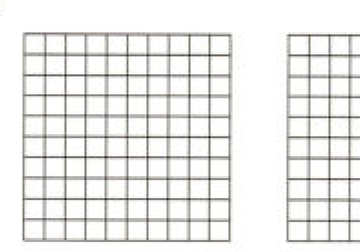
b. 0.46



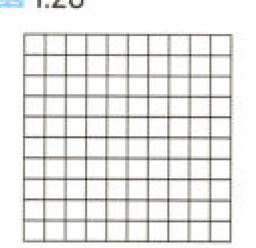
c. 0.72

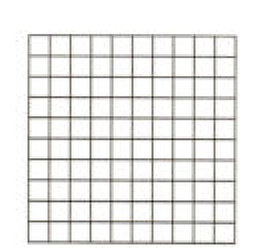


d. 1.3



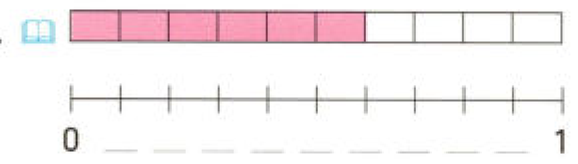
e. 1.28



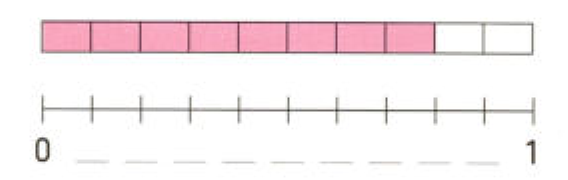


5. Record what fraction and decimal are shown.

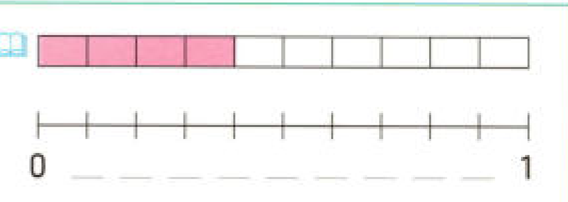
a.



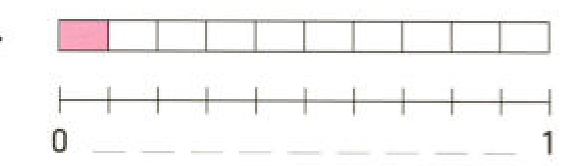
b.



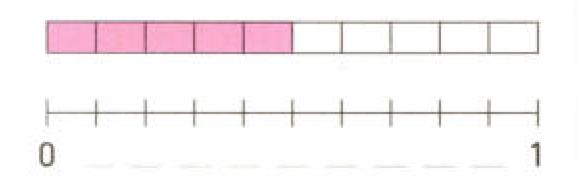
c.



d.



e.



0 1

f.

0 1

6. Write each of the following as a decimal.

a. $\frac{7}{10}$ .... b. $\frac{5}{10}$ .... c. $\frac{3}{10}$ .... d. $\frac{2}{10}$ ....

e. $\frac{27}{100}$ .... [Luxor 23] f. $\frac{15}{100}$ .... g. $\frac{7}{100}$ .... h. $\frac{3}{100}$ ....

7. Write each of the following as a fraction.

a. 0.2 .... b. 0.6 .... c. 0.8 .... d. 0.1 ....

e. 0.23 .... f. 0.69 .... g. 0.08 .... h. 0.02 ....

8. Write the result of each of the following as a decimal.

a. $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} =$ ....

b. $\frac{3}{10} + \frac{4}{10} =$ ....

c. $\frac{5}{10} + \frac{1}{10} + \frac{3}{10} =$ ....

d. $\frac{8}{10} - \frac{3}{10} =$ ....

e. $\frac{15}{10} - \frac{11}{10} =$ ....

f. $\frac{23}{100} + \frac{41}{100} =$ ....

g. $\frac{6}{100} + \frac{70}{100} =$ ....

h. $\frac{1}{100} + \frac{1}{100} + \frac{1}{100} =$ ....

i. $\frac{35}{100} - \frac{14}{100} =$ ....

j. $\frac{99}{100} - \frac{50}{100} =$ ....

9. **Write about math.** How is 0.1 (one-tenth) similar to 1 divided by 10 ?

....

....

10. Hossam had a 1-meter piece of fabric. Of this piece, 0.2 meter had flowers on it, 0.6 meter was plain blue, and the rest had stars.
Color in the strip of Hossam's fabric based on the description.

What decimal of Hossam's strip had stars ? ____________

11. Bassem had a quilt that his mother bought for him.
0.35 of it was colored blue. 0.4 of it was red. The rest was yellow.
Color in the quilt to match the decimals described.

What decimal of Bassem's quilt was yellow ? ____________

12. Aisha was coloring in a Hundredths grid. She colored in 30 squares or 0.30. Adel walked by and said, "Oh, I see you colored in 3 Tenths".
Is Adel correct ? How do you know ?
Color in the grid to check your thinking.

Aisha Adel

13. There are 100 centimeters in 1 meter. Use your ruler, then measure the paper clip in centimeters. Then write the length as a fraction and as a decimal of a meter.

Challenge

14. Is 0.70 greater, less than or equal to 0.7 ? Explain.

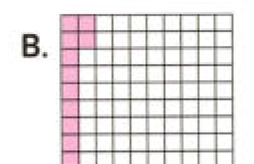
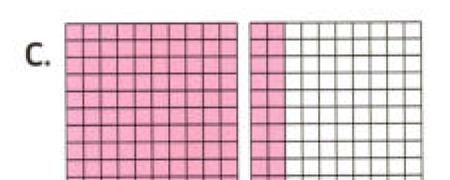
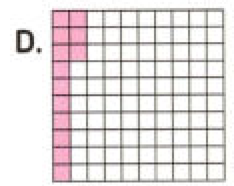
15. **What's the error ?** Aly says 0.20 is equal to $\frac{2}{100}$. Describe his error.



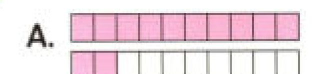
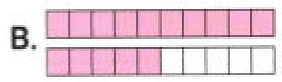
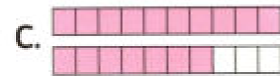
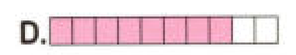
Multiple Choice Questions

Choose the correct answer.

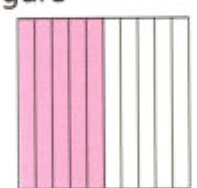
1. Which of the following represents 0.12 ?

A.  B.  C.  D. 

2. Which of the following represents 1.2 ?

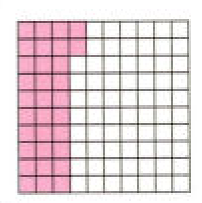
A.  B.  C.  D. 

3. The colored part in the figure represents ......



A. 5 B. 0.05
C. 50 D. 0.50

4. The colored part in the figure represents ......



A. 0.30 B. 0.32
C. 3.2 D. 32

5. $\frac{3}{10}$ = ... [as a decimal] [Luxor 23]

A. 0.7 B. 0.3
C. 0.03 D. 0.07

6. $\frac{2}{100}$ = ... [Ismailia 23 , Cairo 23]

A. 0.2 B. 0.20
C. $\frac{20}{10}$ D. 0.02

7. 0.7 = ... [Souhag 23 , El-Monofia 23]

A. $\frac{10}{7}$ B. $\frac{100}{7}$
C. $\frac{7}{100}$ D. $\frac{7}{10}$

8. Which of the following is equal to 1 ?

A. 0.1 B. 1.1
C. $\frac{10}{10}$ D. $\frac{10}{100}$

9. Which decimal shows eight hundredths ?

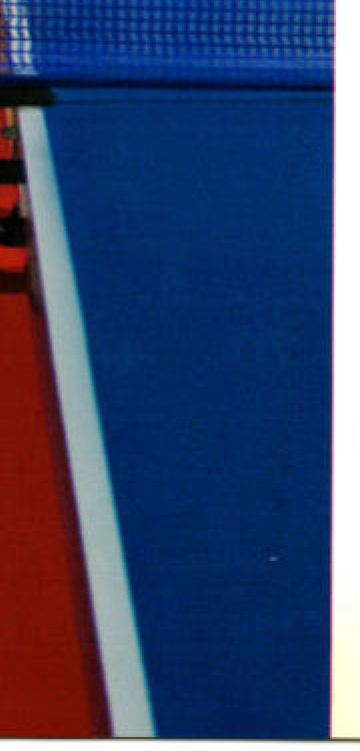
A. 8.00 B. 0.08
C. 0.80 D. 800

10. 0.49 = ...

A. $\frac{49}{10}$ B. $\frac{100}{49}$
C. $\frac{9}{4}$ D. $\frac{49}{100}$

Lessons **3 & 4**

▸ The Place Value
▸ Decimals in Different Forms





Learn 1 Decimal place value

A table tennis ball weighs between 2.4 grams and 2.53 grams.

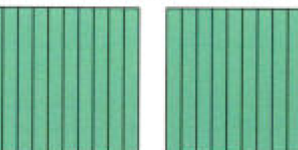


You can use a place-value chart to show decimals.

Ones		Tenths	Hundredths
2	.	4	
2	.	5	3

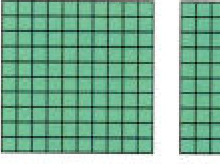
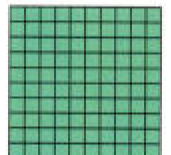
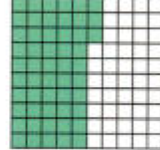
In 2.4, the place to the right of the decimal point shows how many tenths.
Read 2.4 as : two and four tenths.

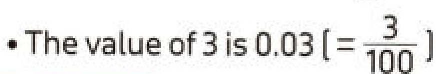
- The value of 2 is 2
- The value of 4 is 0.4 $(= \frac{4}{10})$



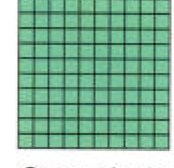
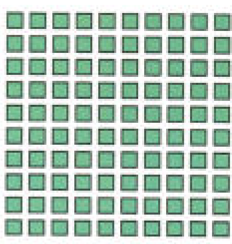

In 2.53, the places to the right of the decimal point show how many hundredths. Read 2.53 as : two and fifty-three hundredths.

- The value of 2 is 2
- The value of 5 is 0.5 $(= \frac{5}{10})$
- The value of 3 is 0.03 $(= \frac{3}{100})$



Remarks

One whole = 10 tenths = 100 hundredths

One tenth = 10 hundredths

Talk about it

What is the value of each 5 in 2.55 ?

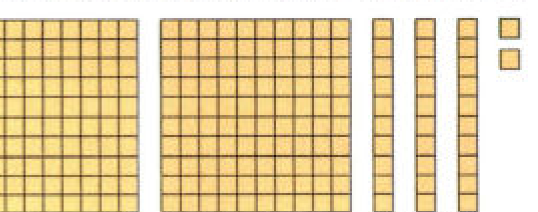
Notes for parents :

- When discussing the lesson, focus on the importance of the place-value relationship between tenths and hundredths. You may wish to ask questions such as the following:
- How many hundredths make 1 tenth ? 10
- How many tenths are there on a hundredths grid ? 10

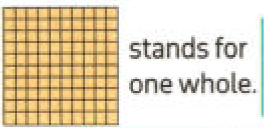
Example 1

Write the decimal to describe each model.

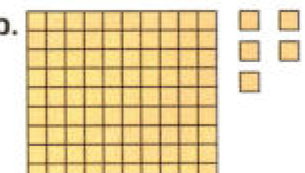
a.



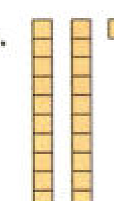
Given



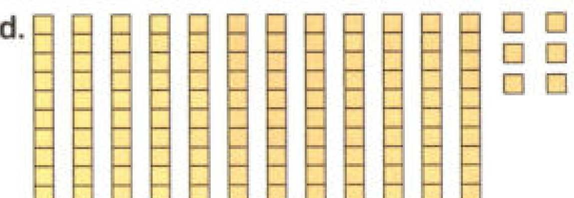
b.



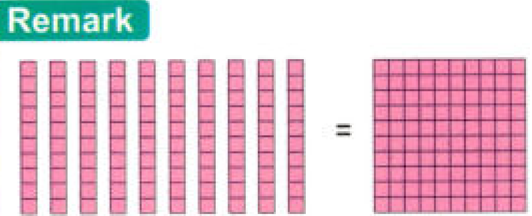
c.



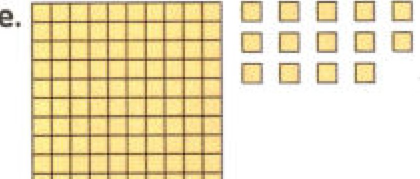
d.



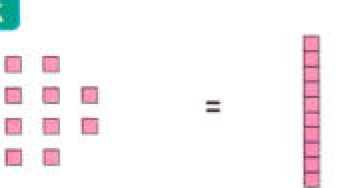
Remark



e.



Remark



Solution 

a. 2.32

b. 1.05

c. 0.21

d. 1.26

e. 1.14

Notes for parents :

• Make sure that your child understand how he/she review 10 tenths as 1 whole.

The place value of decimals

I'm in the Hundreds place.	I'm in the Tens place.	I'm in the Ones place.	I'm the decimal point.	I'm in the Tenths place.	I'm in the Hundredths place.
			.		
My value is **200**	My value is **40**	My value is **9**		My value is **0.5** $(=\frac{5}{10})$	My value is **0.07** $(=\frac{7}{100})$

Example 2

a. Write a number formed from 6 Ones , 4 Tenths , 8 Hundredths.

b. Write a number formed from two and seven hundredths.

c. Write a number formed from fifteen and thirty-one hundredths.

Solution 

a. 6.48 | b. 2.07 | c. 15.31

Example 3

In the number 325.78

a. What is the value of 7 ?

b. What is the value of 2 ?

c. What is the value of the digit in Hundredths place?

Solution 

a. 0.7 | b. 20 | c. 0.08



your understanding

Write the value of the circled digit in each of the following.

a. 32.7(4) ________

b. 174.(2)5 ________

c. 1(3)5.58 ________

d. (7)42.27 ________

• Let your child point to each digit in the decimal number and say the value and the place value of it.

Learn 2 Different forms of decimals

Decimals like whole numbers can be written in standard form, word form, unit form and expanded form.

Ones		Tenths	Hundredths
2	.	7	
3	.	6	5
5	.	0	3

Standard form	Word form	Unit form	Expanded form
2.7	Two and seven tenths	2 Ones , 7 Tenths	$2 + 0.7$
3.65	Three and sixty-five hundredths	3 Ones , 6 Tenths , 5 Hundredths	$3 + 0.6 + 0.05$
5.03	Five and three hundredths	5 Ones , 3 Hundredths	$5 + 0.03$

Example 4

Write in word form.

a. 7.12

b. $3 + 0.7 + 0.04$

c. 6 Ones , 8 Hundredths.

Solution 

a. Seven and twelve hundredths.

b. Three and seventy-four hundredths.

c. Six and eight hundredths.

Example 5

Write in expanded form.

a. Four and eighteen hundredths.

b. 3.09

c. 7 Ones , 2 Tenths.

Solution 

a. $4 + 0.1 + 0.08$

b. $3 + 0.09$

c. $7 + 0.2$

Example 6

Write in unit form.

a. $8 + 0.1 + 0.03$

b. Two and forty hundredths.

c. 3.41

Solution 

a. 8 Ones , 1 Tenth , 3 Hundredths.

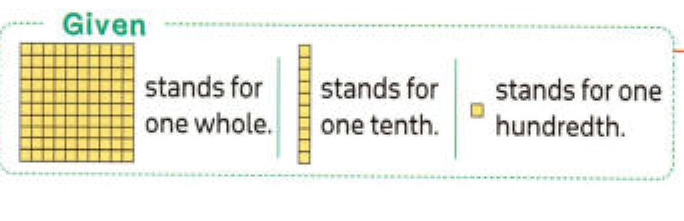
b. 2 Ones , 40 Hundredths. (Or 2 Ones , 4 Tenths).

c. 3 Ones , 4 Tenths , 1 Hundredth.

Notes for parents :

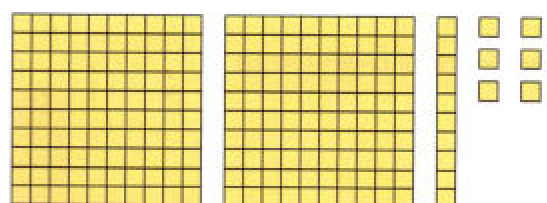
- Give your child a decimal as 2.35 and ask him/her to write this decimal in different forms as possible as he/she can.

Example 7

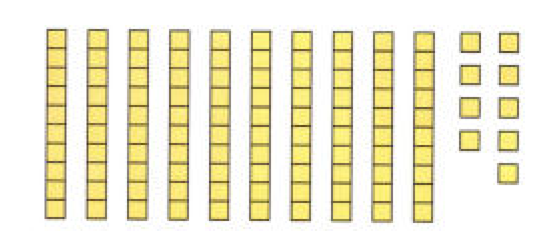


Complete to represent the model.

1. a. Standard form : ________
   b. Word form : ________
   c. Unit form : ________
   d. Expanded form : ________



2. a. Standard form : ________
   b. Word form : ________
   c. Unit form : ________
   d. Expanded form : ________



Solution 

1. a. 2.16
   b. Two and sixteen hundredths
   c. 2 Ones , 1 Tenth , 6 Hundredths
   d. 2 + 0.1 + 0.06

2. a. 1.09
   b. One and nine hundredths
   c. One , 9 Hundredths
   d. 1 + 0.09

Check your understanding

Complete.

a. 3.72 in expanded form is ________

b. 5 + 0.1 + 0.07 in word form is ________

c. Seven and thirteen hundredths in standard form is ________

d. 9.71 in unit form is ________

- After your child write decimals in this page, ask him/her to tell which digit is in the tenths place and which is in the hundredths place.
- For any decimal in this page, let your child tell the digit and its value for example : 3,72 is 3 ones, 7 tenths, 2 hundredths.

Exercise 10 on lessons 3 & 4

▸ The Place Value
▸ Decimals in Different Forms

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Write a number that represents each model.

Given
stands for one whole. | stands for one tenth. | stands for one hundredth.

a. ______________

b. ______________

c. ______________

d. ______________

e. ______________

f. ______________

2. Use the number to answer the questions : 532.89

a. What is the value of the 3 ? ______________

b. What digit is in the Hundredths place ? ______________

c. What is the value of the digit in the Hundreds place ? ______________

d. What digit is in the Tenths place ? ______________

e. Why is the value of the digit in the Hundredths place worth less than the digit in the Tenths place if Hundreds are greater than Tens ? ______________

3. a. Write a number formed from 7 Ones, 9 Tenths , 8 Hundredths. ....

b. Write a number formed from 2 Tenths , 9 Hundredths. ....

c. Write a number formed from five Ones , three Tenths , four Hundredths. ....

d. Write a number formed from sixty-seven Hundredths. ....

e. Write a number formed from one Ones , four Hundredths. ....

4. Complete.

a. The value of the digit 6 in the number 2.65 is .... [Giza - Abo El Nomros 22]

b. The value of the digit 5 in the number 132.85 is ....

c. The value of the digit 9 in the number 19.82 is ....

d. The place value of the digit 7 in the number 2.74 is ....

e. The place value of the digit 0 in the number 10.62 is ....

f. The place value of the digit 5 in the number 12.15 is .... [Giza - Omrania 22]

5. Write the number in standard form.

a. 5 + 0.5 + 0.01 ....

b. 2 + 0.07 ....

c. 7 Ones , 9 Hundredths ....

d. 5 Ones , 8 Tenths , 2 Hundredths ....

e. Nine and forty-three hundredths ....

f. Four and seven hundredths ....

g. Forty-seven hundredths ....



6. Write the number in word form.

a. 4.53 ....

b. 0.48 ....

c. 7.8 ....

d. 3.71 ....

e. 2 + 0.1 + 0.03 ....

f. 4 + 0.02 ....

g. 7 Ones , 3 Tenths , 7 Hundredths ....

h. 2 Ones , 9 Hundredths ....

7. Write the number in expanded form.

a. 4.73 ______ [El-Monofia 23]

b. 2.04 ______

c. Two and fifty hundredths ______

d. One and eighteen hundredths ______

e. 5 Ones , 6 Tenths , 8 Hundredths ______

f. 6 Ones , 1 Tenth , 4 Hundredths ______

8. Write the number in unit form.

a. 4.52 ______ [Port Said 23]

b. 8.5 ______ [Cairo - Zeitoon 22]

c. Seven and thirty-four hundredths ______

d. Fourteen hundredths ______

e. Sixty-nine hundredths ______

f. 7 + 0.6 + 0.01 ______

9. Answer the following questions.

a. **Write the numbe 3.27 in :** [El-Beheira 23]

- Word form : ______
- Expanded form : ______

b. **Write the required forms for the decimal number 4.27 :** [El-Beheira 23]

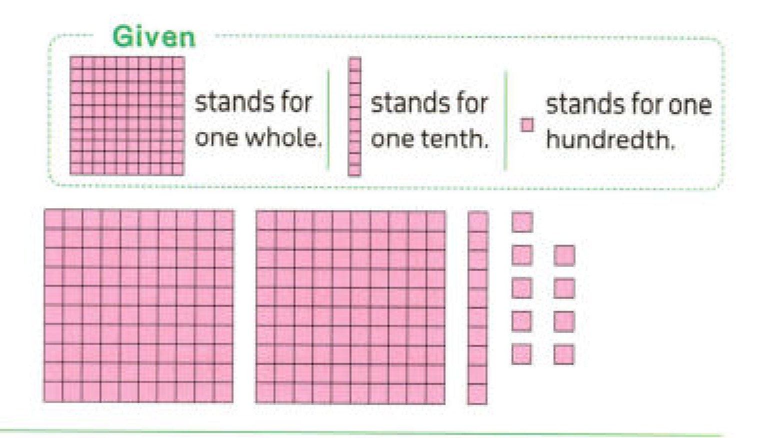
- Expanded form : ______
- Unite form : ______

c. A tree with a length of $5\frac{45}{100}$. Represent the length of the tree in decimal form, then in word form. [El-Beheira 23]

______ [decimal form]

______ [word form]

10. Complete to represent each model.

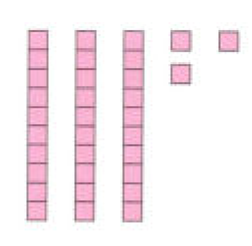


a. Standard form : ________

Word form : ________

Unit form : ________

Expanded form : ________



b. Standard form : ________

Word form : ________

Unit form : ________

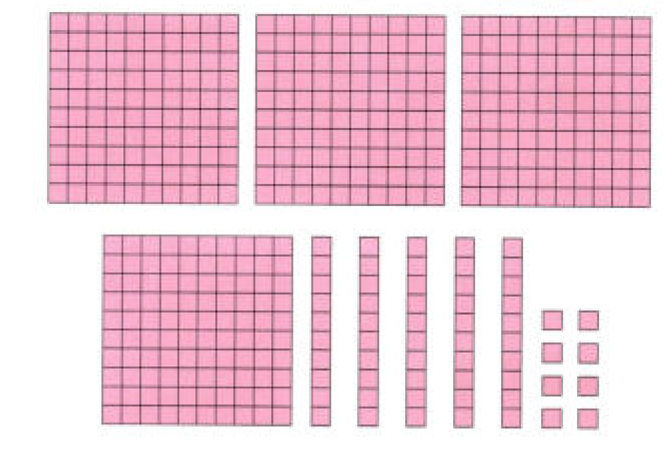
Expanded form : ________

c. Standard form : ________

Word form : ________

Unit form : ________

Expanded form : ________

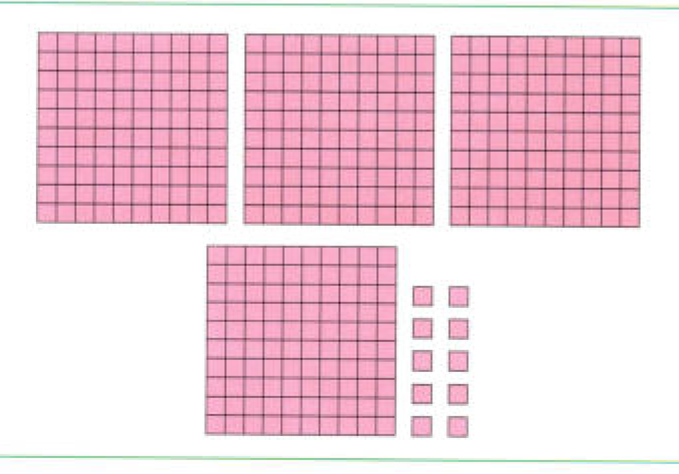


d. Standard form : ________

Word form : ________

Unit form : ________

Expanded form : ________

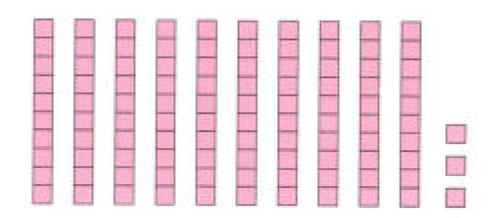


e. Standard form : ________

Word form : ________

Unit form : ________

Expanded form : ________



11. **Complete each of the following.**

a. Seven tenths = ______

b. Nine hundredths = ______

c. Twenty two and thirty-five hundredths = ______

d. Eighteen and six tenths = ______

e. 5 Ones, 6 Tenths, 8 Hundredths = ______ [Kafr El-Sheikh 23]

f. 2 Ones, 3 Tenths, 5 Hundredths = ______ (as a decimal) [Alex. 23]

g. Five and five hundredths = ______ [El-Monofia 23]

h. Five and three tenths = ______ [Cairo 23]

i. 6 tens and 8 tenths = ______ [Aswan 23]

j. Two and nineteen hundredths = ______ [Alex. 23]

k. $4.9 = 4 +$ ______ [El-Monofia 23]

l. $4 + 0.3 + 0.08 =$ ______ (standard from) [Giza 23]

m. $6 + 0.6 + 0.06 =$ ______ [Cairo 23]

n. ______ $= 38 + 0.6$

o. $6.48 = 6 +$ ______ $+ 0.08$

p. $3 + 0.03 + 0.3 =$ ______

Challenge

12. I am a decimal greater than 1 but less than 3. All my digits are even. My Tenths digit is three times my Ones digit. My Hundredths digit is 8. What decimal am I ?

______

Multiple Choice Questions

Choose the correct answer.

1. The word form of 0.6 is ______ [El-Monofia 23]

   A. sixty B. six
   C. six tenths D. six hundredths

2. Which shows 6.05 written in word form ?

   A. Six hundred five.
   B. Six and five hundredths.
   C. Six and five tenths.
   D. Six and fifty hundredths.

3. The expanded form for the number 3.15 is ______ [Cairo 23]

   A. $3+0.2+0.05$ B. $3+0.1+0.05$
   C. $5+0.1+0.3$ D. $1+0.3+0.5$

4. The expanded form for the number 2.35 is ______ [Cairo - Nozha 22]

   A. $2+0.5+0.03$ B. $2+0.3+0.05$
   C. $3+0.5+0.02$ D. $5+0.2+0.03$

5. The standard form for the number : 3 Ones, 5 Tenths and 7 Hundredths is ______ [EL-Gharbia - Tanta 22]

   A. 3.57 B. 3.75
   C. 7.53 D. 5.37

6. Four and thirty-two hundredths = ______ [El-Monofia 23]

   A. 0.43 B. 4.32
   C. 40.32 D. 4.23

7. Thirty-three hundredths = ______ [El-Beheira 23]

   A. 3300 B. 30.03
   C. $\frac{33}{10}$ D. 0.33

8. Two and eight hundredth = ______ [El-Menia 23]

   A. 2.8 B. 2.08
   C. 8.2 D. 280

9. 71 hundredths equals ______ [Port Said 23]

   A. $\frac{7}{100}$ B. 0.29
   C. 0.71 D. $\frac{17}{100}$

10. 53 hundredths = ______ [Kafr-El Sheikh 23]

    A. $\frac{5}{100}$ B. 0.8
    C. 0.53 D. $\frac{35}{100}$

11. $5+0.7+0.02=$ ______ [Kafr-El Sheikh 23]

    A. 0.572 B. 27.5
    C. 5.72 D. 5.27

12. $2.65=2+$ ______ [Kafr El-Sheikh 23]

    A. 65 B. 0.065
    C. 6.5 D. 0.65

13. $60.57=60+$ ______ $+0.07$

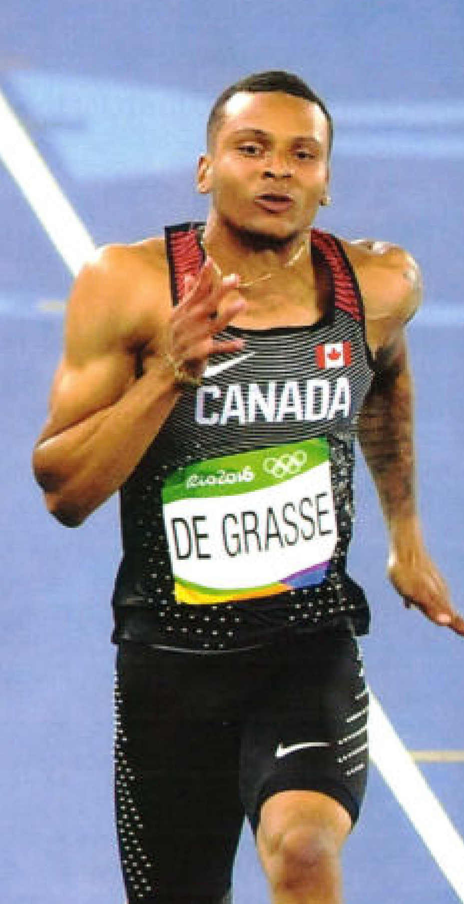
    A. 500 B. 50
    C. 5 D. 0.5

14. The value of the digit 9 in the number 0.19 is ______ [Aswan 23]

    A. 9 B. 0.09
    C. 0.9 D. 90

Concept 2 Decimals and Fractions





Did you Know ?!

In 2009, Usain Bolt set the world record in the 100-metre sprint at 9.58 seconds. He still known as the fastest man in the world.

Lesson No.	Lesson Name	Learning Objectives
Lessons 5 & 6	Same Value, Different Ways	• Students will read and write decimals as fractions.
	The Whole Breakdown	• Students will explain the relationship between decimals and fractions. • Students will explain the relationship between decimals, fractions and the whole.
Lesson 7	All Things Equal	• Students will create equivalent fractions and decimals to the Hundredths place.

Lessons 5 & 6

▸ Same Value , Different Ways
▸ The Whole Breakdown



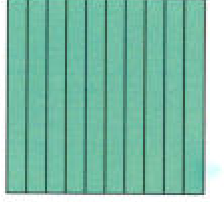
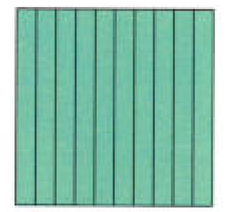
Learn 1 Same value in different forms

In the long jump competition,
Adel jumped two and six tenths metres.

How can you represent this length in different forms ?



Model :




Mixed Number : $2\frac{6}{10}$

Decimal : 2.6

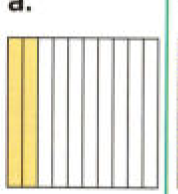
Word form : Two and six tenths.



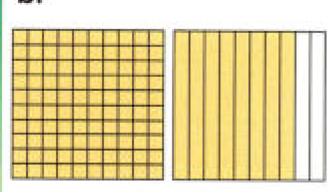
Example 1

Write the fraction and the decimal for the colored parts.

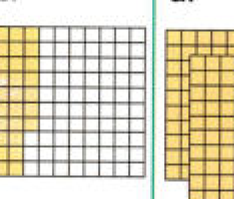
a.



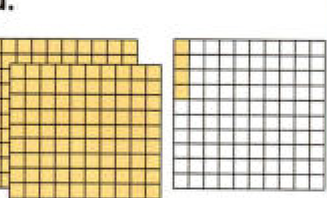
b.



c.



d.



Solution 

a. $\frac{2}{10}$, 0.2

b. $1\frac{8}{10}$, 1.8

c. $\frac{27}{100}$, 0.27

d. $2\frac{4}{100}$, 2.04

Notes for parents :

- Remind your child that he/she can write three forms for the colored parts which are the fraction, the decimal and the word form.

Example 2

Write the fraction for each of the following decimals.

a. 0.4 b. 0.13 c. 0.07 d. 2.93

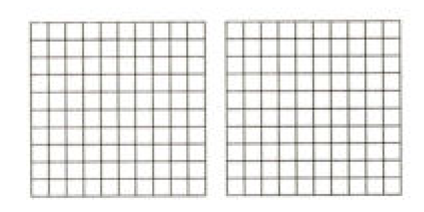
Solution

a. $\frac{4}{10}$ b. $\frac{13}{100}$ c. $\frac{7}{100}$ d. $2\frac{93}{100}$

Example 3

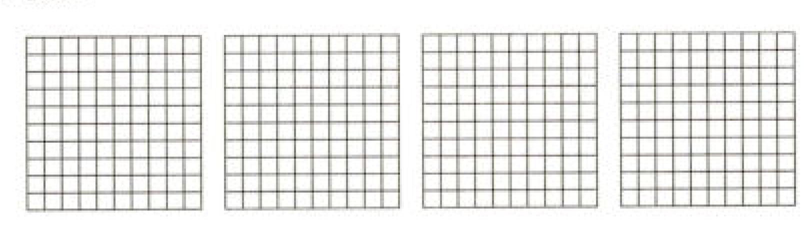
Color a model for each decimal and write it in fraction form.

a. 1.28



The fraction is ....

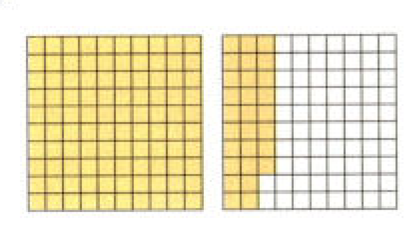
b. 3.02



The fraction is ....

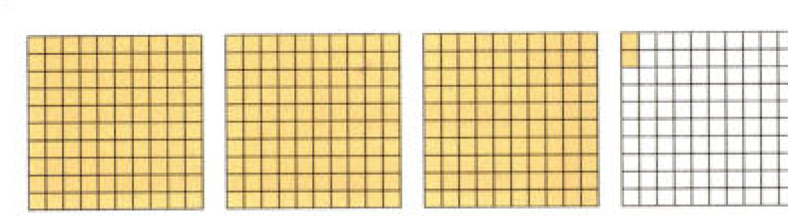
Solution 

a.



The fraction is $1\frac{28}{100}$

b.



The fraction is $3\frac{2}{100}$



Check your understanding

Write the fraction form for each of the following decimals.

a. 0.9 .... b. 2.7 .... c. 3.74 .... d. 7.05 ....

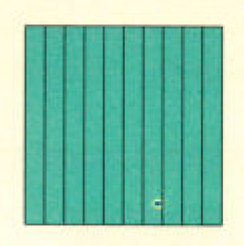
Notes for parents :

- Ask your child to choose one problem from the check your understanding and explain his/her answer.

Learn 2 The parts of the one whole

There are 10 tenths in the whole one

Then, $1 = 10 \text{ tenths} = \frac{10}{10}$

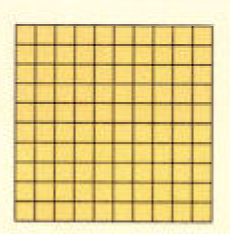


Examples

- $5 = 50 \text{ tenths} = \frac{50}{10}$
- $1.7 = 17 \text{ tenths} = \frac{17}{10}$
- $9 = 90 \text{ tenths} = \frac{90}{10}$
- $10.3 = 103 \text{ tenths} = \frac{103}{10}$

There are 100 hundredths in the whole one

Then, $1 = 100 \text{ hundredths} = \frac{100}{100}$



Examples

- $5 = 500 \text{ hundredths} = \frac{500}{100}$
- $1.7 = 170 \text{ hundredths} = \frac{170}{100}$
- $9 = 900 \text{ hundredths} = \frac{900}{100}$
- $10.3 = 1030 \text{ hundredths} = \frac{1030}{100}$

More Examples

- 2.9 = 29 tenths = 290 hundredths
- 7 = 70 tenths = 700 hundredths

Check your understanding

Complete.

a. 7 = ______ hundredths

b. ______ = 20 tenths

c. 3.4 = ______ tenths

d. 16 tenths = $\frac{__}{__}$

e. $\frac{185}{100}$ = ______ hundredths

f. 11.2 = ______ hundredths

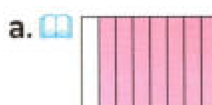
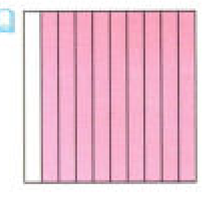
- Ask your child how many tenths are there in 6 , and how many hundredths in 6 .

Exercise 11
on lessons 5 & 6

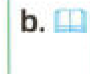
- Same Value , Different ways
- The Whole Breakdown

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

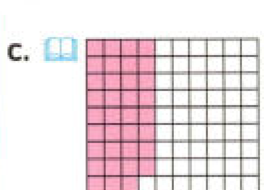
1. Express each modal as a fraction and a decimal.

a. 


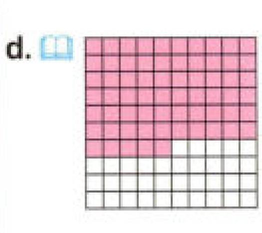
—— , ——

b. 

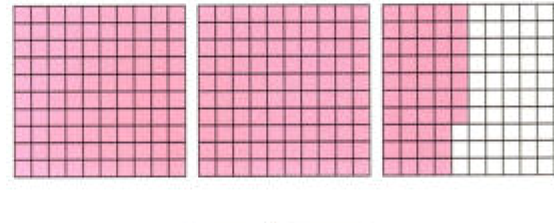

—— , ——

c. 

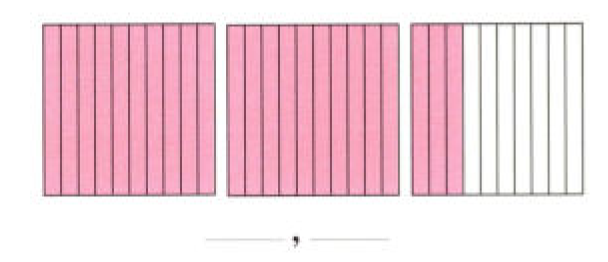
—— , ——


d. 

—— , ——

e. 


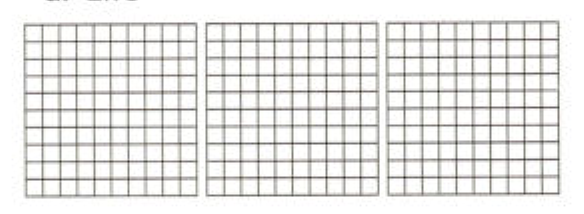
—— , ——

f. 

—— , ——

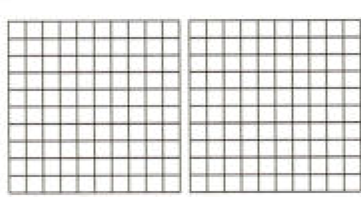
2. Color a model for each decimal and write it as a fraction. (in the simplest form)

a. 2.93



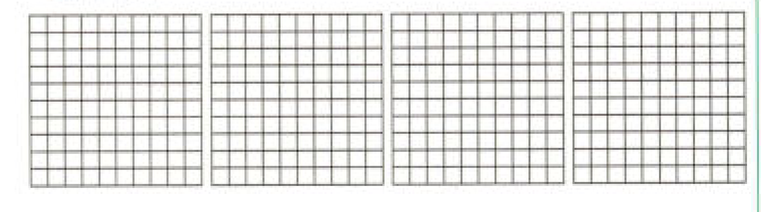
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b. 1.32



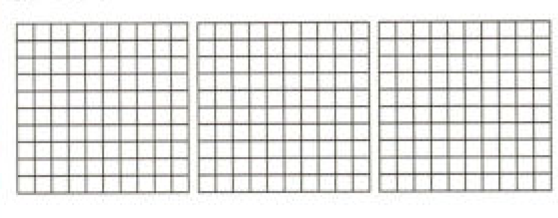
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c. 3.04



——————

d. 2.74



——————

3. Express the decimals as fractions in simplest form.

a. 0.3 = ______	b. 0.02 = ______	c. 0.67 = ______
d. 0.23 = ______	e. 2.20 = ______	f. 3.4 = ______
g. 10.05 = ______	h. 5.97 = ______	i. 4.79 = ______

4. Answer the following.

a. How many tenths are there in one whole ? ______

b. How many hundredths are there in 3 ? ______

c. How many tenths are there in 10 ? ______

d. How many tenths are there in 2 ? ______

e. How many hundredths are there in 5 ? ______

f. How many hundredths are there in 10 ? ______

5. Decompose the units to represent each number as Tenths and then write the number as a fraction.

a. 3

Tenths : ______

In fraction form : ______

b. 1

Tenths : ______

In fraction form : ______

c. 4

Tenths : ______

In fraction form : ______

d. 1.5

Tenths : ______

In fraction form : ______

e. 2.3

Tenths : ______

In fraction form : ______

f. 10.8

Tenths : ______

In fraction form : ______

6. Decompose the units to represent each number as Hundredth and then write the number as a fraction.

a. 1

Hundredths : ______

In fraction form : ______

b. 3

Hundredths : ______

In fraction form : ______

c. 19

Hundredths : ______

In fraction form : ______

d. 1.5

Hundredths : ______

In fraction form : ______

e. 2.3

Hundredths : ....

In fraction form : ....

f. 10.8

Hundredths : ....

In fraction form : ....

g. 13.2

Hundredths : ....

In fraction form : ....

h. 0.4

Hundredths : ....

In fraction form : ....

7. Complete.

a. 2.4 = ... tenths [El-Beheira 23]

b. 7.5 = ... tenths [Kafr-El-Sheikh 23]

c. 5.2 = ... hundredths

d. 3.74 = ... hundredths

e. 89.5 = ... tenths

f. $\frac{19}{10}$ = ... tenths

g. $\frac{143}{100}$ = ... hundredths

h. 18.5 = ... [in a fraction form] [Giza 23]

i. 3.4 = ... [as an improper fraction] [Kafr El-Sheikh 23]

j. 1.9 = $\frac{\dots}{10}$ [as a fraction] [El-Monofia 23]

k. 3.7 = ... [as a mixed] [Ismailia 23]

l. 4.5 tenths = ... [as a decimal] [Cairo 23]

m. 198 tenths = ... [as a decimal]

n. 291 hundredths = ... [as a fraction]

o. 2 + 0.5 = ... [as a mixed number]

p. 1 + 0.8 + 0.06 = ... [as a mixed number]

q. 15 + 0.7 = ... [as an improper fraction]

r. 25 + 0.25 = ... [as an improper fraction]

8. • Ayda has a brother of height $50\frac{1}{10}$ cm

• Express the height in the form of a decimal ....

• How can you rewrite $50\frac{1}{10}$ cm using tenths only ? ....

9. Ahmed surveyed 100 students , $\frac{38}{100}$ of them have a dog for pet.

• How many students have a dog ? ....

• How can you rewrite $\frac{38}{100}$ using hundredths ? ....

Multiple Choice Questions

Choose the correct answer.

1. 0.2 = ...

A. $\frac{2}{10}$ B. $\frac{2}{100}$ C. $\frac{22}{100}$ D. $\frac{20}{10}$

2. 1.05 = ...

A. $1\frac{5}{10}$ B. $1\frac{5}{100}$ C. $1\frac{50}{100}$ D. $1\frac{15}{100}$

3. $\frac{13}{100}$ = ...

A. 1.3 B. 1.03 C. 0.13 D. 1.30

4. 5.7 = ...

A. $5\frac{7}{100}$ B. $5\frac{70}{100}$ C. $\frac{57}{100}$ D. $7\frac{5}{10}$

5. 7 tenths = ... hundredths. [Alex. 23]

A. 70 B. 7 C. 10 D. 17

6. 29 tenths = ... [Giza 23]

A. 0.29 B. 2.9 C. 9.2 D. 90.2

7. 473 hundredths = ... [El-Monofia 23]

A. 0.7 B. 4.73 C. 47.3 D. 473

8. 47 hundredths = ... [Cairo 23]

A. 0.47 B. 4.7 C. $\frac{47}{10}$ D. 0.74

9. 3.4 = ... tenths [Souhag 23]

A. 34 B. 340 C. 3.4 D. 0.34

10. 0.7 = ... tenths [El-Menia 23]

A. 70 B. 700 C. 0.7 D. 7

11. 1.5 = ... tenths [Alex. 23]

A. 1.5 B. 0.15 C. 15 D. 150

12. $2\frac{3}{10}$ = ... tenths

A. 0.23 B. 2.3 C. 23 D. 230

13. 8 = ... hundredths

A. 0.08 B. 8 C. 80 D. 800

14. $\frac{153}{100}$ = ... hundredths

A. 1.53 B. 15.3 C. 153 D. 1530

Lesson 7

All Things Equal

Learn Equivalent fractions

- **Equivalent fractions** are fractions that name the same number.

Use models and paper folding to find equivalent fractions.

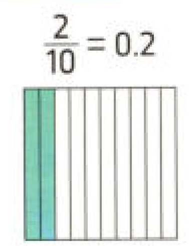
Are $\frac{2}{10}$ and $\frac{20}{100}$ equivalent fractions ?

Activity

Step 1

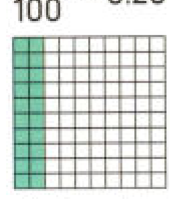
Color $\frac{2}{10}$ of the tenths model and $\frac{20}{100}$ of the hundredths model.

$\frac{2}{10} = 0.2$



Two tenths
2 out of 10

$\frac{20}{100} = 0.20$



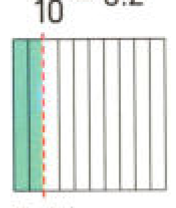
Twenty hundredths
20 out of 100

Step 2

Fold $\frac{2}{10}$ of the tenths model and $\frac{20}{100}$ of the hundredths model.

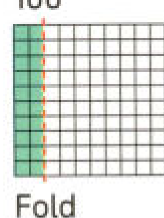
Then, compare the models.

$\frac{2}{10} = 0.2$



Fold

$\frac{20}{100} = 0.20$



Fold

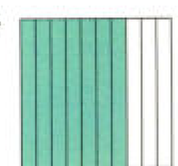
The folded parts of the models are the same size.

So, $\frac{2}{10}$ and $\frac{20}{100}$ are equivalent fractions and 0.2 and 0.20 are equivalent decimals.

Example 1

Write the equivalent fraction and the equivalent decimal to represent the colored part.

a.

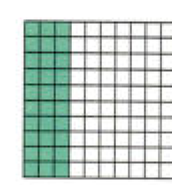


The fraction : $\frac{7}{10} =$ ____________

The decimal : 0.7 = ____________

Notes for parents :

- Remind your child to write a 0 in the hundredths place for decimals given in tenths.

b.  

The fraction : $\frac{30}{100}$ = ...

The decimal : 0.30 = ...

Solution 

a. The fraction : $\frac{7}{10} = \frac{70}{100}$

The decimal : 0.7 = 0.70

b. The fraction : $\frac{30}{100} = \frac{3}{10}$

The decimal : 0.30 = 0.3

Example 2

Write the equivalent fraction and the equivalent decimal to each of the following.

a. $\frac{60}{100}$ The fraction = ...
The decimal = ...

b. $\frac{9}{10}$ The fraction = ...
The decimal = ...

c. 0.20 The fraction = ...
The decimal = ...

d. 0.1 The fraction = ...
The decimal = ...

Solution 

a. $\frac{6}{10}$, 0.6

b. $\frac{90}{100}$, 0.90

c. $\frac{2}{10}$, 0.2

d. $\frac{10}{100}$, 0.10

Check your understanding

Write the equivalent fraction and the equivalent decimal to each of the following.

a. $\frac{80}{100}$ The fraction is ....
The decimal is ....

b. $\frac{4}{10}$ The fraction is ....
The decimal is ....

c. 0.50 The fraction is ....
The decimal is ....

d. 0.6 The fraction is ....
The decimal is ....

• Ask your child to write $\frac{9}{10}$ in two ways, once with one decimal place and the other with two decimal places.

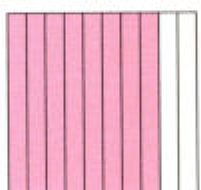
Exercise 12 on lesson 7

All Things Equal

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | 📖 From the school book

1. Create an equivalent model, record its fraction and write as a decimal fraction.

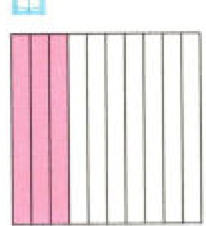
a. 

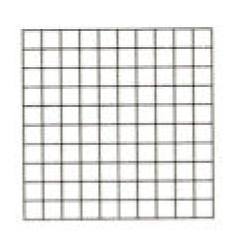


The fraction : $\frac{8}{10}$ = ...

The decimal : 0.8 = ...

b. 📖

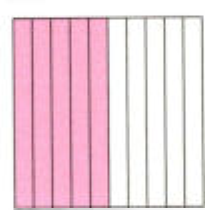




The fraction : $\frac{30}{100}$ = ...

The decimal : 0.30 = ...

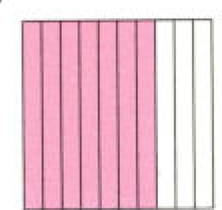
c. 📖

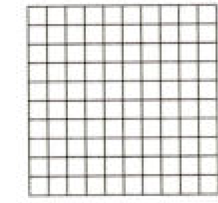


The fraction : $\frac{5}{10}$ = ...

The decimal : 0.5 = ...

d.





The fraction : .... = ...

The decimal : .... = ...

2. Write equivalent or not equivalent.

a. 0.7 and 0.70 ....

b. 0.04 and 0.4 ....

c. 0.9 and 0.09 ....

d. 0.28 and 0.82 ....

e. 0.17 and 0.07 ....

f. 0.1 and 0.10 ....

3. Write an equivalent decimal for each. You may use decimal models.

a. 0.8 ....

b. 0.7 ....

c. 0.90 ....

d. 0.2 ....

e. 0.5 ....

f. 0.10 ....

g. 0.40 ....

h. 0.6 ....

4. Write equivalent or not equivalent.

a. $\frac{3}{10}$ and $\frac{30}{100}$ ....

b. $\frac{5}{100}$ and $\frac{50}{10}$ ....

c. $\frac{80}{100}$ and $\frac{8}{10}$ ....

d. $\frac{4}{100}$ and $\frac{4}{10}$ ....

e. $\frac{60}{100}$ and $\frac{6}{10}$ ....

f. $\frac{20}{100}$ and $\frac{2}{100}$ ....

5. Write an equivalent fraction for each.

a. $\frac{7}{10}$ ______ b. $\frac{80}{100}$ ______ c. $\frac{9}{10}$ ______ d. $\frac{4}{10}$ ______

e. $\frac{10}{100}$ ______ f. $\frac{20}{100}$ ______ g. $\frac{3}{10}$ ______ h. $\frac{50}{100}$ ______

6. Record an equivalent fraction and an equivalent decimal for each problem.

a. $\frac{1}{10}$
The fraction : ______
The decimal : ______

b. $\frac{70}{100}$
The fraction : ______
The decimal : ______

c. $\frac{6}{10}$
The fraction : ______
The decimal : ______

d. 0.4
The fraction : ______
The decimal : ______

e. 0.30
The fraction : ______
The decimal : ______

f. 0.9
The fraction : ______
The decimal : ______

g. $\frac{10}{10}$
The fraction : ______
The decimal : ______

h. $1\frac{4}{10}$
The fraction : ______
The decimal : ______

i. 2.1
The fraction : ______
The decimal : ______

j. $3\frac{30}{100}$
The fraction : ______
The decimal : ______

7. Fill the missing denominator or numerator. Circle the fraction that is more than 1 whole.

a. $\frac{5}{10} = \frac{50}{\square}$ b. $\frac{20}{100} = \frac{\square}{10}$ c. $\frac{4}{10} = \frac{40}{\square}$

d. $\frac{200}{100} = \frac{\square}{10}$ e. $\frac{70}{\square} = \frac{7}{10}$ f. $\frac{80}{10} = \frac{\square}{100}$

g. $\frac{3}{10} = \frac{\square}{100}$ h. $\frac{60}{100} = \frac{\square}{10}$ i. $\frac{70}{10} = \frac{\square}{100}$

j. $\frac{900}{100} = \frac{\square}{10}$ k. $\frac{8}{\square} = \frac{80}{100}$ l. $\frac{10}{100} = \frac{\square}{10}$

Challenge

8. Make a model to show that 0.8 and 0.80 are equivalent. Explain your model.

______

Multiple Choice Questions

Choose the correct answer.

1. $\frac{70}{100} = \frac{7}{___}$ [Giza 23]

A. 10 B. 100

C. 1000 D. 10000

2. $\frac{3}{10}$ is equivalent to $\frac{___}{100}$ [El-Beheira 23]

A. 3 B. 30

C. 0.3 D. 13

3. 0.4 is equivalent to ______ [El-Menia 22 , El-Monofia 23]

A. $\frac{4}{100}$ B. $\frac{1}{4}$

C. $\frac{10}{4}$ D. $\frac{4}{10}$

4. Which fraction is equivalent to 0.3 ? [Cairo 23]

A. $\frac{30}{10}$ B. $\frac{3}{100}$

C. $\frac{3}{10}$ D. $\frac{300}{100}$

5. $\frac{2}{10}$ is equivalent to ______ [El-Menia 23]

A. 0.20 B. 0.02

C. 2.0 D. 2.2

6. $3\frac{7}{10}$ is equivalent to ______

A. 0.37 B. 3.07

C. 3.70 D. 37

7. Which of the following is equivalent to $\frac{6}{10}$?

A. 0.60 B. 0.06

C. $\frac{60}{10}$ D. 1.6

8. Which fraction is equivalent to 0.3 ?

A. $\frac{30}{10}$ B. $\frac{3}{100}$

C. $\frac{3}{10}$ D. $\frac{300}{100}$

9. Which fraction is equivalent to 0.45 ?

A. $\frac{450}{100}$ B. $\frac{450}{10}$

C. $\frac{45}{10}$ D. $\frac{45}{100}$

10. 8 tenths is equivalent to ______

A. 0.08 B. $\frac{80}{10}$

C. $\frac{8}{100}$ D. $\frac{80}{100}$

11. 70 tenths is equivalent to ______

A. 0.7 B. 0.07

C. 0.70 D. 7

12. Which of the following is **NOT** equivalent to $\frac{50}{100}$?

A. $\frac{5}{10}$ B. 0.5

C. 0.50 D. 0.05



Concept 3

Operations on Decimals

Fast Fact

Female kangaroos sport a pouch on their belly (made by a fold in the skin) to cradle baby kangaroos , called joeys. Newborn joeys are tiny , measuring just 2.5 centimetres , or about the size of a grape - cute!

Lesson No.	Lesson Name	Learning Objectives
Lessons 8 & 9	Comparing Decimals	• Students will compare decimals that do not have the same number of digits.
	Comparing Fractions and Decimals	• Students will compare decimals with fractions that have 10 or 100 as the denominator.
Lessons 10 & 11	Adding Fractions with Denominators 10 and 100 Using Models	• Students will use models to add two fractions with related denominators.
	Adding Two Fractions with Denominators 10 and 100 by Converting into Equivalent Fractions.	• Students will add two fractions with related denominators.

Lessons 8 & 9

▸ Comparing Decimals
▸ Comparing Fractions and Decimals



Comparing Decimals

- You can use place value charts to compare decimals.

Compare 0.36 and 0.56

Ones	·	Tenths	Hundredths
0	·	3	6
0	·	5	6

For examples:

- Begin with the digit in the greatest place value.
- **Compare ones :** 0 ones = 0 ones
- **Compare tenths :** 3 tenths $<$ 5 tenths

So, $0.36 < 0.56$

Compare 0.6 and 0.06

Ones	·	Tenths	Hundredths
0	·	6	0
0	·	0	6

- Begin with the digit in the greatest place value.
- **Compare ones :** 0 ones = 0 ones
- **Compare tenths :** 6 tenths $>$ 0 tenths

So, $0.6 > 0.06$

Example 1

Use place value chart to compare the following decimals.

a. 1.42 and 1.25 **b.** 1.7 and 1.73 **c.** 2.8 and 2.80

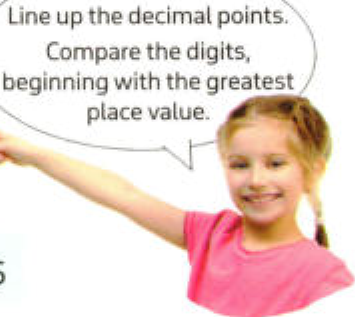
Solution 

a.

Ones	·	Tenths	Hundredths
1	·	4	2
1	·	2	5

$1 = 1$ $4 > 2$

Since, $4 > 2$ **So,** 1.42  1.25



b.

Ones	·	Tenths	Hundredths
1	·	7	0
1	·	7	3

$1 = 1$ $7 = 7$ $0 < 3$

Since, $0 < 3$ **So,** $1.7 < 1.73$

c.

Ones	·	Tenths	Hundredths
2	·	8	0
2	·	8	0

$2 = 2$ $8 = 8$ $0 = 0$

So, 2.8  2.80



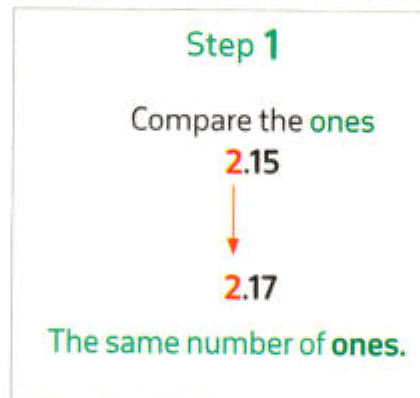
- Remind your child to begin comparing with the greatest place value.

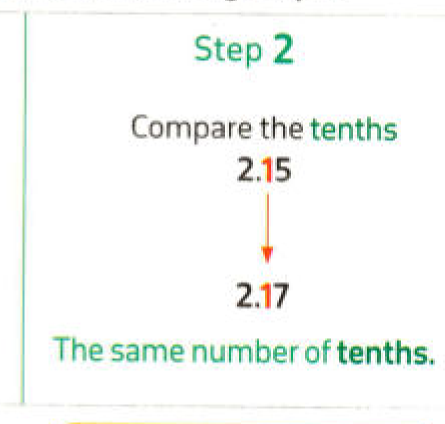
Example 2

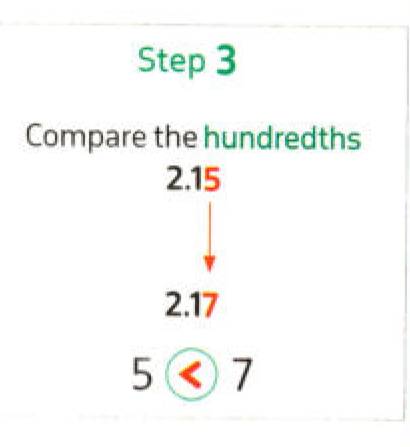
Compare 2.15 and 2.17

Solution 

To compare 2.15 and 2.17 , follow the following steps :







So, 2.15 < 2.17



your understanding

1. Use place value chart to compare each of the following two decimals.

a. 0.37 and 0.7

Ones	·	Tenths	Hundredths

b. 0.35 and 0.29

Ones	·	Tenths	Hundredths

c. 0.80 and 0.09

Ones	·	Tenths	Hundredths

d. 0.6 and 0.60

Ones	·	Tenths	Hundredths

2. Compare. Write ">, < or =".

a. 0.52 ◯ 0.54
b. 0.9 ◯ 0.82
c. 1.52 ◯ 1.45
d. 3.7 ◯ 3.70
e. 3.4 ◯ 4.56
f. 2.05 ◯ 2.15

• Remind your child to begin comparing with the greatest place value.

Learn 2 Comparing decimals and fractions in different forms

- You can compare decimals in different forms.

For example :

- Compare $5\frac{62}{100}$ and 5.47

Rewrite $5\frac{62}{100}$ as a decimal.

$5\frac{62}{100} = 5.62$

Ones	·	Tenths	Hundredths
5	·	6	2
5	·	4	7

- Begin with the digit in the greatest place value.
- **Compare the ones :** 5 ones = 5 ones
- **Compare the tenths :** 6 tenths > 4 tenths

So, 5.62 is greater than 5.47 5.62 > 5.47

Example 3

Compare using "> , < or =".

a. 0.37 ☐ $\frac{4}{10}$

b. 1.02 ☐ $\frac{102}{100}$

c. 24 tenths ☐ 0.24

d. 2 Ones , 5 Tenths ☐ 2.05

e. 3.00 ☐ $\frac{30}{100}$



Solution

a. Since , $\frac{4}{10} = 0.4$ So, 0.37 < 0.4

b. Since , $\frac{102}{100} = 1.02$ So, 1.02 = 1.02

c. Since , 24 tenths = 2.4 , So, 2.4 > 0.24

d. 2.5 > 2.05

e. 3.00 > 0.30

Check your understanding

Compare using "> , < or =".

a. 3 + 0.1 + 0.07 ◯ 3.2

b. 5 hundredths ◯ 0.50

c. 9.01 ◯ $8\frac{92}{100}$

d. 4 ones , 3 tenths , 1 hundredths ◯ 4.31



Notes for parents :

- Ask your child how is comparing decimals like comparing whole numbers.
- Let your child tells you how he/she compares decimals and fractions such as : 3.2 and $\frac{328}{100}$

Exercise 13 on lessons 8 & 9

▶ Comparing Decimals
▶ Comparing Fractions and Decimals

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Rewrite the decimals in the chart. Use the symbols "> , < or =".

a. 0.34 ________ 0.4

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

b. 0.45 ________ 0.04

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

c. 0.23 ________ 0.3

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

d. 0.54 ________ 0.45

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

e. 0.62 ________ 0.26

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

f. 0.80 ________ 0.09

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

g. 0.73 ________ 0.69

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

h. 0.10 ________ 0.1

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

i. 0.49 ____________ 0.04

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

j. 0.27 ____________ 0.7

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

2. Use"> , < or =" to compare.

a. 0.2 ◯ 0.13
b. 0.31 ◯ 0.13
c. 0.34 ◯ 0.04
d. 0.30 ◯ 0.3
e. 0.35 ◯ 0.3
f. 0.7 ◯ 0.68
g. 0.18 ◯ 0.4
h. 0.60 ◯ 0.8
i. 0.07 ◯ 0.7
j. 0.26 ◯ 0.2
k. 1.37 ◯ 1.5
l. 2.31 ◯ 1.99
m. 5 ◯ 3.74
n. 2.31 ◯ 2.08
o. 10.3 ◯ 1.03
p. 3.4 ◯ 34
q. 9.7 ◯ 9.35
r. 4.8 ◯ 0.48

3. Compare the numbers using "> , < or =".

a. $\frac{24}{100}$ ◯ 0.6
b. 3.72 ◯ $3\frac{7}{100}$
c. $\frac{6}{10}$ ◯ 0.34
d. $\frac{134}{100}$ ◯ 1.03
e. $\frac{200}{100}$ ◯ 0.20
f. $\frac{8}{10}$ ◯ 0.79
g. 0.23 ◯ $\frac{23}{10}$
h. $\frac{50}{100}$ ◯ 5.00
i. 3.7 ◯ $3\frac{17}{100}$
j. $\frac{9}{10}$ ◯ 0.89
k. 0.42 ◯ $\frac{4}{10}$
l. 1.04 ◯ 98 tenths
m. 7 tenths ◯ 0.7
n. 3 hundredths ◯ 2 tenths
o. 3 hundredths ◯ $\frac{30}{100}$
p. 2.07 ◯ 2 Ones , 7 Tenths

4. Circle all the decimal numbers greater than 3.2

2.3 , 3.52 , 3.20 , 3.3 , 2.99 , 3.02 , 3.9

5. Circle all the decimal numbers smaller than 2.3

3.2 , 2.1 , 2.30 , 4.01 , 0.7 , 2.99 , 2.03

6. Adam drank 0.6 liter of juice.

Omar drank $\frac{4}{10}$ liter of juice.

Who drank more? [Cairo - Helwan 22]



7. Gamal's home is 0.44 kilometer from the school,

while Hany's home is $\frac{6}{10}$ kilometer from the school.

Who walks the longer distance to the school? [Souhag 22]



8. Maisa went to the supermarket and saw two bottles of olive oil. The first one contained $\frac{5}{10}$ liter of olive oil and the second one contained 0.73 liter of olive oil. Which bottle contained more olive oil? How do you know? Use words, numbers or pictures to explain your thinking.

9. Use the table to complete the chart and answer the questions.



Bag of figs 1.3 Kg	Mangoes 2.01 Kg	Plums 1.21 Kg	Pomegranates 2.25 Kg

Fruit	Ones	Decimal Point	Tenths	Hundredths
Figs		.		
Mangoes		.		
Plums		.		
Pomegranates		.		

a. Which item weighs the least ? ____________

b. Which item weighs the most ? ____________

c. Which items weigh more than Plums ? ____________

d. Which items weigh less than Mangoes ? ____________

Fill in the blanks to make a true statement.

e. ____________ > ____________ f. ____________ < ____________

---

10. Adam is plotting what he passes on the way to school on the number line.

Number the line in tenths using fractions (above the line) and decimals (below the line).

Then, plot the following on the number line and answer the questions :

- Omar's house : $\frac{3}{10}$ kilometer.
- Corner Store : 0.8 kilometer.
- Street light : $\frac{1}{10}$ kilometer.
- Sara's house : 0.6 kilometer.
- A brown house : 0.3 kilometer.
- A coffee shop : 0.7 kilometer.
- A yellow house : $\frac{6}{10}$ kilometer.
- A park : 1.0 kilometer.

0 km — 1 km

Adam's house — School

a. Which is further from Adam's house :

Sara's house or Omar's house ? ____________

b. When Adam is walking to school, does he pass the coffee shop or the corner store first ? ____________

c. Who lives in the brown house ? ____________

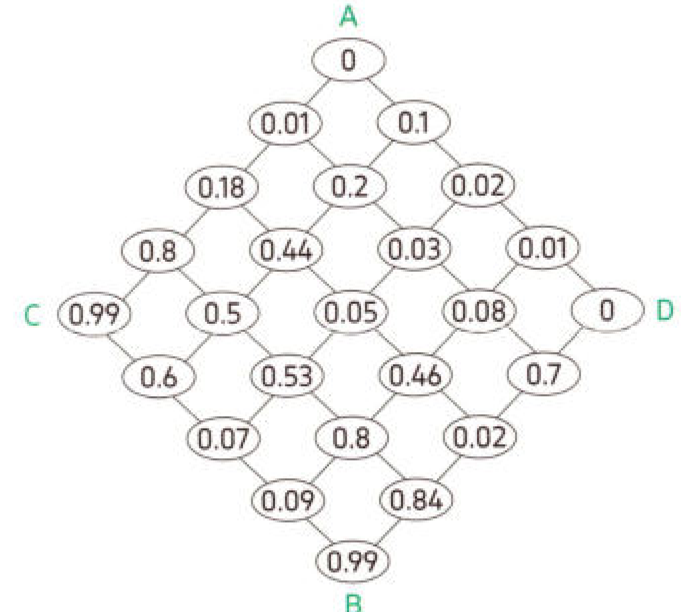
d. Who lives in the yellow house ? ____________

e. How far is the street light from Omar's house ? ____________

Challenge

11. a. On the worksheet, trace a path through the maze from A to B. For each step, move to a number of greater value.

b. On the worksheet, trace a path through the maze from C to D. For each step, move to a number of lesser value.



Multiple Choice Questions

Choose the correct answer.

1. $0.4 \bigcirc 0.34$ [Port Said 23]
   A. $<$ B. $=$ C. $>$

2. $4.5 \bigcirc 4.51$ [Luxor 23]
   A. $<$ B. $>$ C. $=$

3. $2.4 \bigcirc 2\frac{42}{100}$
   A. $>$ B. $<$ C. $=$

4. $\frac{125}{100} \bigcirc 1.3$
   A. $>$ B. $<$ C. $=$

5. $3.74 \bigcirc \frac{374}{100}$
   A. $>$ B. $<$ C. $=$

6. $0.9 <$ .... [Alex. 23]
   A. 0.7 B. 0.15
   C. 0.8 D. 1.2

7. Which of the following is greater than 1.64 ?
   A. 1.7 B. 1.5
   C. 1.47 D. 1.08

8. Which of the following is smaller than $\frac{36}{100}$?
   A. $\frac{4}{10}$ B. 0.7
   C. 0.53 D. 0.23

9. 7 tenths $\bigcirc \frac{17}{100}$ [Alex. 23]
   A. $>$ B. $=$ C. $<$

10. 17 hundredths $\bigcirc$ 17 tenths
    A. $>$ B. $<$ C. $=$

11. 12. ▢ 6 < 12.67
    A. 6 B. 7
    C. 8 D. 9

12. $3.07 \bigcirc$ 3 Ones , 7 Tenths
    A. $>$ B. $<$ C. $=$

13. Which of the following is true ?
    A. $0.53 > 0.55$ B. $0.03 > 0.3$
    C. $1.1 > 0.99$ D. $4.8 < 4.75$

14. Which of the following is worng statement ? [El-Monofia 23]
    A. $8.03 = 8.3$ B. $5.3 > 5.14$
    C. $74.8 > 7.48$ D. $0.55 > 0.52$

15. 76 tenths > ....
    A. 670 tenths B. 670 hundredths
    C. 81 tenths D. 780 hundredths

16. 90 hundredths < ....
    A. $\frac{19}{100}$ B. $\frac{10}{100}$
    C. $\frac{91}{10}$ D. $\frac{9}{10}$

Lessons 10 & 11

▸ Adding Fractions with Denominators 10 and 100 Using Models
▸ Adding Two Fractions with Denominators 10 and 100 by Converting into Equivalent Fractions

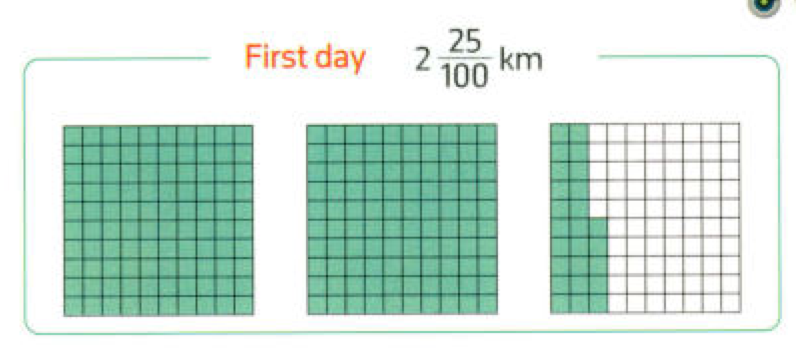
Learn 1 Adding using models

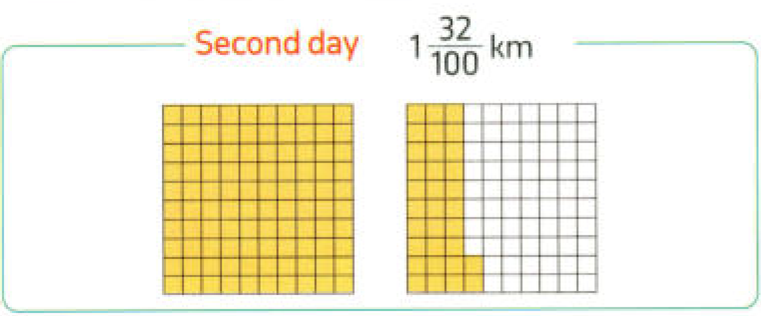
• You can use models to add two fractions with related denominators.

Problem

Andy and some friends went cross-country skating, they covered $2\frac{25}{100}$ kilometers in the first day and $1\frac{32}{100}$ kilometers in the second day. What is the distance that they covered in the two days ?

You can use models to find the answer.





The distance they covered in the two days

$2\frac{25}{100} + 1\frac{32}{100}$

So, $2\frac{25}{100} + 1\frac{32}{100} = 3\frac{57}{100}$



Notes for parents :

• Help your child use models to add two fractions with related denominators.

Example 1

Find the result.

a. $\frac{3}{10} + \frac{4}{10}$

b. $\frac{2}{10} + \frac{38}{100}$

c. $\frac{37}{100} + \frac{83}{100}$

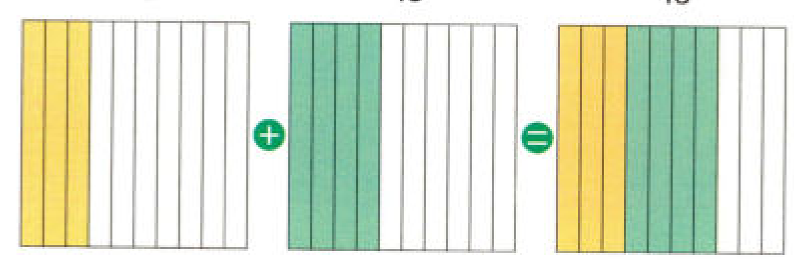
d. $\frac{3}{10} + \frac{4}{10} + \frac{8}{10}$

e. $2\frac{1}{10} + 1\frac{1}{100}$

f. $\frac{7}{10} + \frac{87}{100}$



a. $\frac{3}{10} + \frac{4}{10} = \frac{7}{10}$

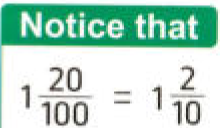


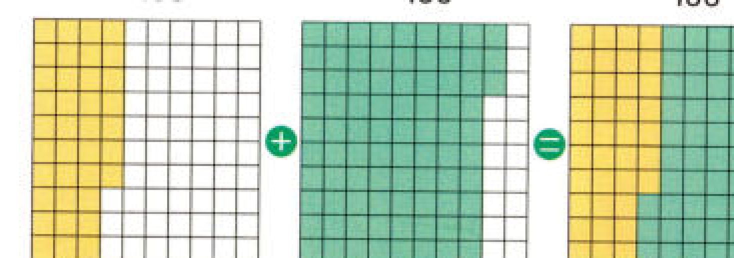
b. $\frac{2}{10} + \frac{38}{100} = \frac{58}{100}$

Notice that

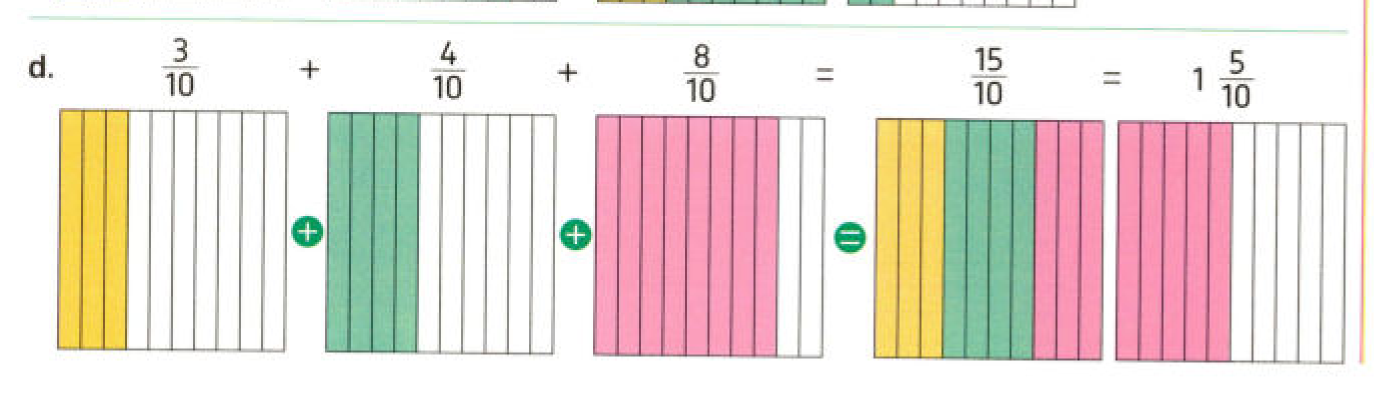
$\frac{2}{10} = \frac{20}{100}$

c. $\frac{37}{100} + \frac{83}{100} = \frac{120}{100} = 1\frac{20}{100}$



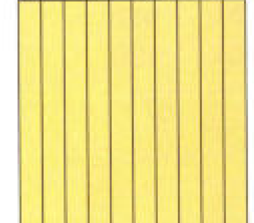
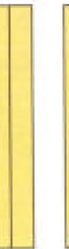
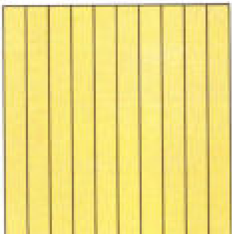
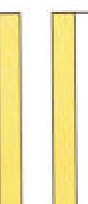
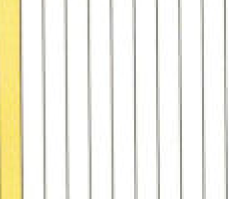
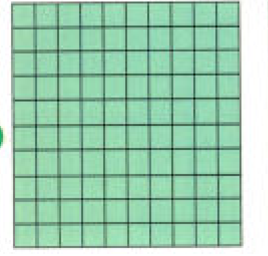
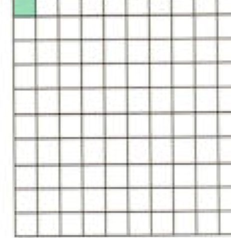


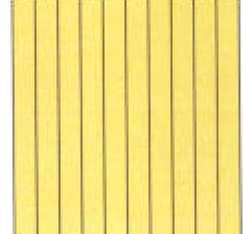
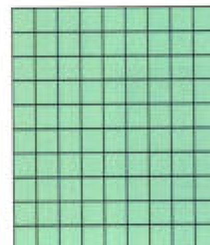
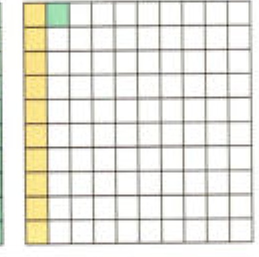
d. $\frac{3}{10} + \frac{4}{10} + \frac{8}{10} = \frac{15}{10} = 1\frac{5}{10}$



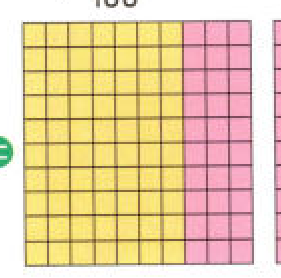
• Remind your child that $\frac{2}{10} = \frac{20}{100}$ (two tenths is equivalent to twenty hundredths)

e. $2\frac{1}{10} + 1\frac{1}{100} = 3\frac{11}{100}$

f. $\frac{7}{10} + \frac{87}{100} = 1\frac{57}{100}$



Notice that

$\frac{7}{10} = \frac{70}{100}$

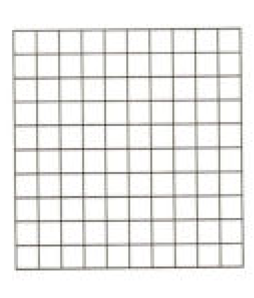
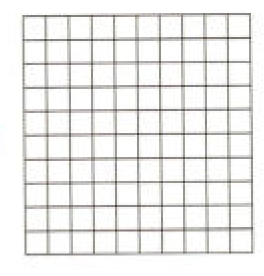
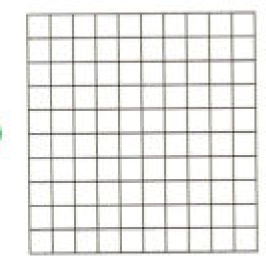
Check your understanding

Find the result using models.

a. $\frac{3}{10} + \frac{6}{10}$

b. $\frac{42}{100} + \frac{7}{100}$

Notes for parents :

- Ask your child how he/she uses models to solve addition problems as $\frac{5}{10} + \frac{30}{100}$

Learn 2 Adding using equivalent fractions

- $\frac{7}{10} + \frac{13}{100} = \frac{70}{100} + \frac{13}{100} = \frac{83}{100}$
- $\frac{5}{10} + \frac{67}{100} = \frac{50}{100} + \frac{67}{100} = \frac{117}{100} = 1\frac{17}{100}$



Remember that

- $\frac{7}{10}$ is equivalent to $\frac{70}{100}$
- $\frac{50}{100}$ is equivalent to $\frac{5}{10}$

Example 2

Record equivalent fractions showing your steps.

a. $\frac{30}{100} = \frac{__}{10}$

b. $\frac{7}{10} = \frac{__}{100}$

c. $5\frac{40}{100} = 5\frac{4}{__}$

d. $\frac{700}{100} = \frac{70}{__}$

Solution

a. $\frac{30}{100} = \frac{3}{10}$ (÷ 10, ÷ 10)

"by dividing by 10 the quotient is 3"

b. $\frac{7}{10} = \frac{70}{100}$ (× 10, × 10)

"by multiplying by 10 the product is 70"

c. $5\frac{40}{100} = 5\frac{4}{10}$ (÷ 10, ÷ 10)

"by dividing by 10 the quotient is 10"

d. $\frac{700}{100} = \frac{70}{10}$ (÷ 10, ÷ 10)

"by dividing by 10 the quotient is 10"

Example 3

Complete to find the result.

a. $\frac{34}{100} + \frac{5}{10} = \frac{34}{100} + \frac{__}{100} = \frac{__}{100}$

b. $3\frac{7}{10} + 2\frac{12}{100} = 3\frac{__}{100} + 2\frac{12}{100} = 5\frac{__}{100}$

Solution

a. $\frac{34}{100} + \frac{5}{10} = \frac{34}{100} + \frac{50}{100} = \frac{84}{100}$

b. $3\frac{7}{10} + 2\frac{12}{100} = 3\frac{70}{100} + 2\frac{12}{100} = 5\frac{82}{100}$



• Help your child express a fraction with denominator 10 as an equivalent fraction with denominator 100

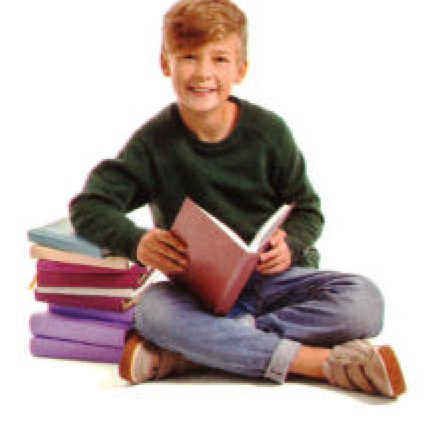
Example 4

Find the result.

a. $\frac{3}{10} + \frac{50}{100}$

b. $3\frac{2}{10} + 4\frac{3}{100}$ [in the decimal form]

c. $2\frac{5}{10} + \frac{34}{100} + \frac{61}{100}$ [in the decimal form]





Solution

a. $\frac{3}{10} + \frac{50}{100} = \frac{30}{100} + \frac{50}{100} = \frac{80}{100}$



Another Solution :

$\frac{3}{10} + \frac{50}{100} = \frac{3}{10} + \frac{5}{10} = \frac{8}{10}$

Note that

The two results are equal $\frac{80}{100} = \frac{8}{10}$

b. $3\frac{2}{10} + 4\frac{3}{100} = 3\frac{20}{100} + 4\frac{3}{100} = 7\frac{23}{100} = 7.23$

c. $2\frac{5}{10} + \frac{34}{100} + \frac{61}{100} = 2\frac{50}{100} + \frac{34}{100} + \frac{61}{100} = 2\frac{145}{100} = 3\frac{45}{100} = 3.45$

Check your understanding

Find the result.

a. $\frac{1}{10} + \frac{2}{100} =$ ....

b. $3\frac{54}{100} + \frac{6}{10} =$ .... [in the decimal form]

c. $\frac{7}{10} + \frac{15}{100} + \frac{22}{100} =$ ....

d. $2\frac{2}{10} + 4\frac{71}{100} =$ .... [in the decimal form]



Notes for parents :

- Help your child write an equivalent fraction of denominator 100 to a fraction of denominator 10 and use this technique to add two fractions.

Exercise 14

on lessons 10 & 11

- Adding Fractions with Denominators 10 and 100 Using Models
- Adding Two Fractions with Denominators 10 and 100 by Converting into Equivalent Fractions

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Write the numerator or denominator to form equivalent fraction.

a. $\frac{6}{10} = \frac{\quad}{100}$

b. $\frac{3}{10} = \frac{\quad}{100}$

c. $\frac{4}{10} = \frac{40}{\quad}$

d. $\frac{20}{100} = \frac{2}{\quad}$

e. $\frac{70}{100} = \frac{7}{\quad}$

f. $\frac{900}{100} = \frac{90}{\quad}$

g. $\frac{80}{100} = \frac{8}{\quad}$

h. $\frac{90}{100} = \frac{\quad}{10}$ [Port Said 23]

i. $\frac{\quad}{10} = \frac{10}{100}$

2. Make equivalent fractions and record how you increased or decreased the numerator and the denominator.

a. $\frac{30}{100} = \frac{\quad}{10}$ ______

b. $\frac{4}{10} = \frac{40}{\quad}$ ______

c. $\frac{2}{10} = \frac{\quad}{100}$ ______

d. $\frac{90}{100} = \frac{\quad}{10}$ ______

e. $\frac{50}{100} = \frac{\quad}{10}$ ______

f. $1\frac{70}{100} = 1\frac{7}{\quad}$ ______

g. $\frac{100}{100} = \frac{\quad}{10}$ ______

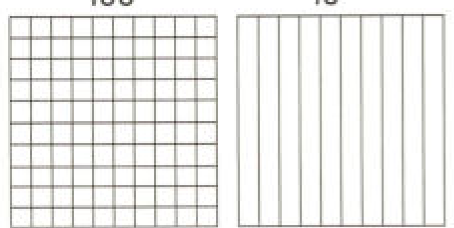
h. $\frac{40}{10} = \frac{\quad}{100}$ ______

i. $\frac{600}{100} = \frac{60}{\quad}$ ______

j. $2\frac{8}{10} = 2\frac{\quad}{100}$ ______

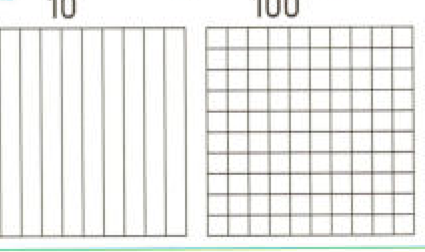
3. Use models to find the result.

a. $\frac{15}{100} + \frac{3}{10} =$ ______

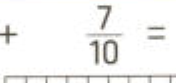


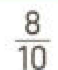
b. $\frac{23}{100} + \frac{7}{10} =$ ______

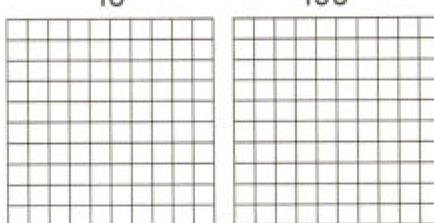
c. $\frac{2}{10} + \frac{30}{100} =$ ______



d. $\frac{5}{100} + \frac{7}{10} =$ ______



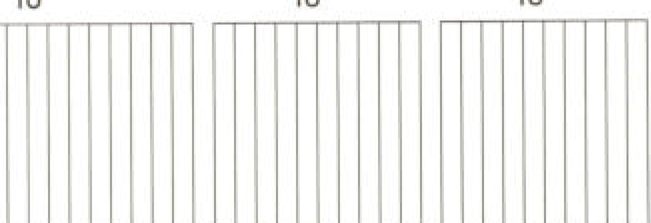
e.  $\frac{8}{10} + \frac{7}{100} =$ ______





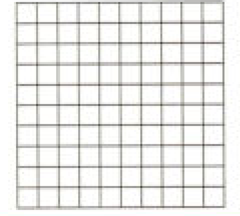


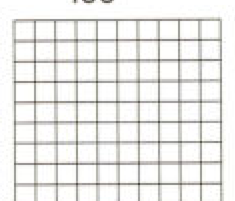
f. $\frac{2}{10} + \frac{6}{10} + \frac{4}{10} =$ ______

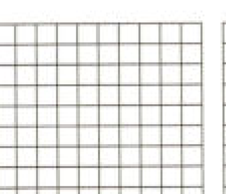


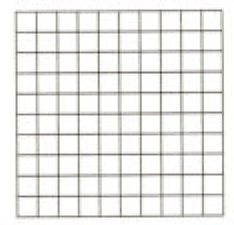
g. $1\frac{4}{10} + 1\frac{32}{100} =$ ______



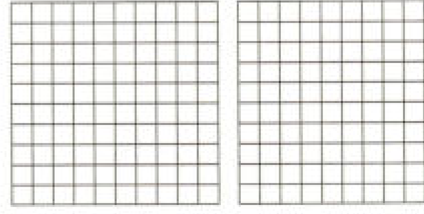


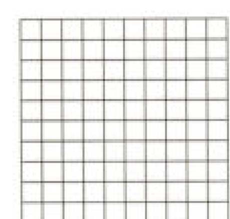






h.  $1\frac{5}{10} + \frac{30}{100} =$ ______







4. Complete to find the result.

a. $\frac{6}{10} + \frac{23}{100} = \frac{__}{100} + \frac{23}{100} = \frac{__}{100}$

b. $\frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{__}{10} = \frac{__}{10}$

c. $\frac{3}{10} + \frac{8}{100} = \frac{__}{100} + \frac{8}{100} = \frac{__}{__}$

d. $\frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{__}{100} = \frac{__}{__}$

e. $\frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{__}{100} = \frac{__}{__}$

f. $\frac{6}{10} + \frac{82}{100} = \frac{__}{100} + \frac{82}{100} = \frac{__}{__}$

5. Find the result of each of the following.

a. $\frac{2}{100} + \frac{5}{10} =$ .... [EL-Menia 23]

b. $\frac{4}{10} + \frac{4}{100} =$ .... [EL-Beheira 23]

c. $\frac{6}{10} + \frac{40}{100} =$ .... [Souhag 23]

d. $\frac{2}{10} + \frac{50}{100} =$ .... [Cairo 23]

e. $\frac{3}{10} + \frac{70}{100} =$ ....

f. $\frac{40}{100} + \frac{5}{10} =$ ....

g. $\frac{7}{10} + \frac{3}{10} + \frac{1}{100} =$ ....

h. $\frac{2}{10} + \frac{24}{100} + \frac{6}{10} =$ ....

i. $2\frac{3}{10} + 4\frac{5}{100} =$ .... [as a mixed number] [El-Beheira 23]

j. $\frac{32}{100} + \frac{31}{100} =$ .... [in the decimal form]

k. $\frac{69}{100} + \frac{2}{10} =$ .... [in the decimal form] [Souhag 22]

l. $\frac{3}{10} + \frac{46}{100} =$ .... [in the decimal form] [EL-Kalyoubia 22]

m. $\frac{72}{100} + \frac{54}{100} =$ .... [in the decimal form]

n. $12\frac{1}{10} + 4\frac{37}{100} =$ .... [in the decimal form]

o. $4\frac{2}{10} + 5\frac{2}{100} + 2\frac{2}{10} =$ .... [in the decimal form]

6. Hady has $\frac{5}{10}$ L of juice. He add $\frac{40}{100}$ L of juice to them. **How many liters does he have in all ?** [El-Beheira 23]

....

....

7. Hosam walked $\frac{5}{10}$ kilometer then he walked $\frac{21}{100}$ kilometer. **How long did Hosam walk to his home ?** [Kafr El-Sheikh 23 , Assuit 23]

....

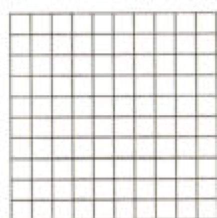
....

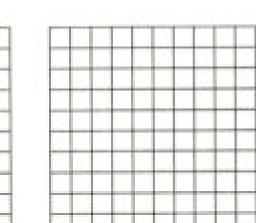
8. Hana bought a piece of cloth of length $\frac{8}{10}$ meter and Mona bought another piece of length $\frac{25}{100}$ meter. **What is the total length of the two pieces ?** [Port Said 23]

9. Aya had $1\frac{5}{10}$ kilogram of rice. She bought another $1\frac{25}{100}$ kilogram. She used all the amount to cook a meal. **How much rice did she use ?** [Alex. 23]

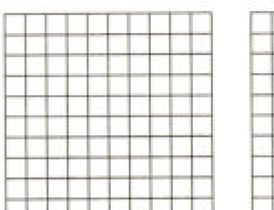
10. Abeer had $\frac{8}{10}$ of a meter of fabric. She went to the store and bought another $\frac{25}{100}$ of a meter. How much fabric did she have in all ? Fill in the models to show each fraction and then solve.

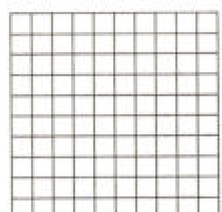






11. Diaa had a water bottle with $\frac{5}{10}$ liter in it. He added it to another bottle that had $\frac{65}{100}$ of a liter. Does he have more than 1 liter ? How do you know ? Use the models to explain.







Challenge

12. Find the perimeter of the opposite rectangle.

$\frac{3}{10}$ cm

$\frac{12}{100}$ cm

Multiple Choice Questions

Choose the correct answer.

1. $\frac{3}{10} + \frac{6}{100} =$ .... [El-Beheira 23]

A. $\frac{36}{10}$ B. $\frac{60}{10}$

C. $\frac{36}{100}$ D. $\frac{63}{100}$

2. $\frac{15}{100} + \frac{3}{10} =$ .... [Kafr El-Sheikh 23]

A. 45 B. 4.5

C. 0.45 D. 0.018

3. $\frac{12}{100} + \frac{3}{10} =$ .... [El-Monofia 23]

A. $\frac{15}{100}$ B. $\frac{52}{100}$

C. $\frac{42}{100}$ D. $\frac{15}{100}$

4. $\frac{1}{10} + \frac{11}{100} =$ .... [Giza 22]

A. 0.12 B. 0.21

C. 2.1 D. 1.2

5. $\frac{7}{10} + \frac{2}{10} = \frac{\dots}{100}$ [Ismailia 23]

A. 9 B. 90

C. 5 D. 50

6. $\frac{2}{10} + \frac{3}{10} = \frac{\dots}{100}$

A. 5 B. 50

C. 60 D. 500

7. $\frac{7}{10} + \frac{8}{10} + \frac{9}{10} =$ ....

A. 2.04 B. 0.4

C. 2.3 D. 2.4

8. $3\frac{17}{100} + 2\frac{5}{10} =$ ....

A. $5\frac{67}{100}$ B. $5\frac{22}{10}$

C. $5\frac{22}{100}$ D. $6\frac{22}{100}$

9. $\frac{21}{100} + \frac{7}{10}$ ◯ $\frac{71}{100} + \frac{2}{10}$

A. $>$ B. $<$ C. $=$

10. $\frac{75}{100} + \frac{1}{10} <$ ....

A. $\frac{85}{100}$ B. $\frac{9}{10}$

C. $\frac{83}{100}$ D. $\frac{79}{100}$

11. $\frac{3}{10} >$ ....

A. $\frac{15}{100} + \frac{1}{10}$ B. $\frac{2}{10} + \frac{1}{10}$ C. $\frac{18}{100} + \frac{12}{100}$ D. $\frac{5}{10} + \frac{71}{100}$

12. Which of the following is true ?

A. $\frac{2}{10} + \frac{6}{10} = \frac{8}{20}$

B. $2\frac{3}{10} + 3\frac{22}{100} = 5\frac{52}{100}$

C. $4\frac{2}{100} + 7\frac{3}{10} = 11\frac{5}{100}$

D. $9\frac{18}{100} + 9\frac{1}{10} = 18\frac{19}{100}$

Unit Ten Assessment



1 Choose the correct answer.

a. The value of the digit 3 in the number 15.23 is ______

A. 0.03 B. 0.30 C. 3 D. 30

b. 0.07 = ______ "as a fraction."

A. $\frac{7}{10}$ B. $\frac{7}{100}$ C. $\frac{70}{10}$ D. $\frac{70}{100}$

c. 0.6 ◯ 0.49 [El-Menia 23]

A. > B. = C. < D. otherwise

d. 7 + 0.1 + 0.05 = ______

A. 71.5 B. 7.15 C. 7.51 D. 1.75

e. Which fraction is equivalent to 0.9 ?

A. $\frac{90}{10}$ B. $\frac{9}{100}$ C. $\frac{9}{10}$ D. 90

f. $\frac{35}{100} + \frac{2}{10} <$ ______

A. $\frac{7}{10}$ B. $\frac{55}{100}$ C. $\frac{3}{10}$ D. $\frac{49}{100}$

g. The digit in the tenths place in the number 56.79 is ______

A. 5 B. 6 C. 7 D. 9

2 Complete.

a. $\frac{5}{10} + \frac{25}{100} =$ ______

b. 5.7 = ______ tenths

c. 3.16 in word form is ______

d. The place value of the digit 3 in the number 54.32 is ______

e. Six and eight hundredths = ______ in standard form.

f. 21.7 = ______ hundredths

g. $3\frac{7}{10}$ is equivalent to ______ as decimal. [Souhag 23]

h. 5 tens and 3 tenths = ______

3 Choose the correct answer.

a. $0.07 + 0.2 =$ ______

A. 72 tenths B. 27 tenths C. 72 hundredths D. 27 hundredths

b. $2\frac{1}{10} + 3\frac{1}{100} =$ ______

A. 5.2 B. 5.12 C. 5.11 D. 5.22

c. $7.2 >$ ______

A. 7.3 B. 7.16 C. 7.20 D. 7.29

d. $\frac{2}{10} + \frac{27}{100} =$ ______

A. $\frac{29}{100}$ B. $\frac{209}{100}$ C. $\frac{47}{100}$ D. $\frac{49}{100}$

e. 0.34 ◯ 0.4

A. > B. < C. =

f. $\frac{810}{100} = \frac{\quad}{10}$

A. 8100 B. 810 C. 81 D. 8.1

g. $1\frac{40}{100} =$ ______

A. 140 B. 14 C. 1.4 D. 1.04

4 Answer the following.

1. Amira bought 1.5 kilograms of tomatoes. Nada bought 1.6 kilograms of tomatoes. Who bought less ?

______

2. Adam drank 0.6 liter of juice. Omar drank $\frac{4}{10}$ liter of juice. Who drank more ? [Assuit 23]

______

3. Samy has $\frac{5}{10}$ liters of orange juice and $\frac{35}{100}$ liters of apple juice. How many liters does samy have in all ? [Alex. 23]

______

4. Maha wrote 7.03 in word form as seven and 3 tenths
Is Maha right or wrong ? If she is wrong correct her mistake.

______

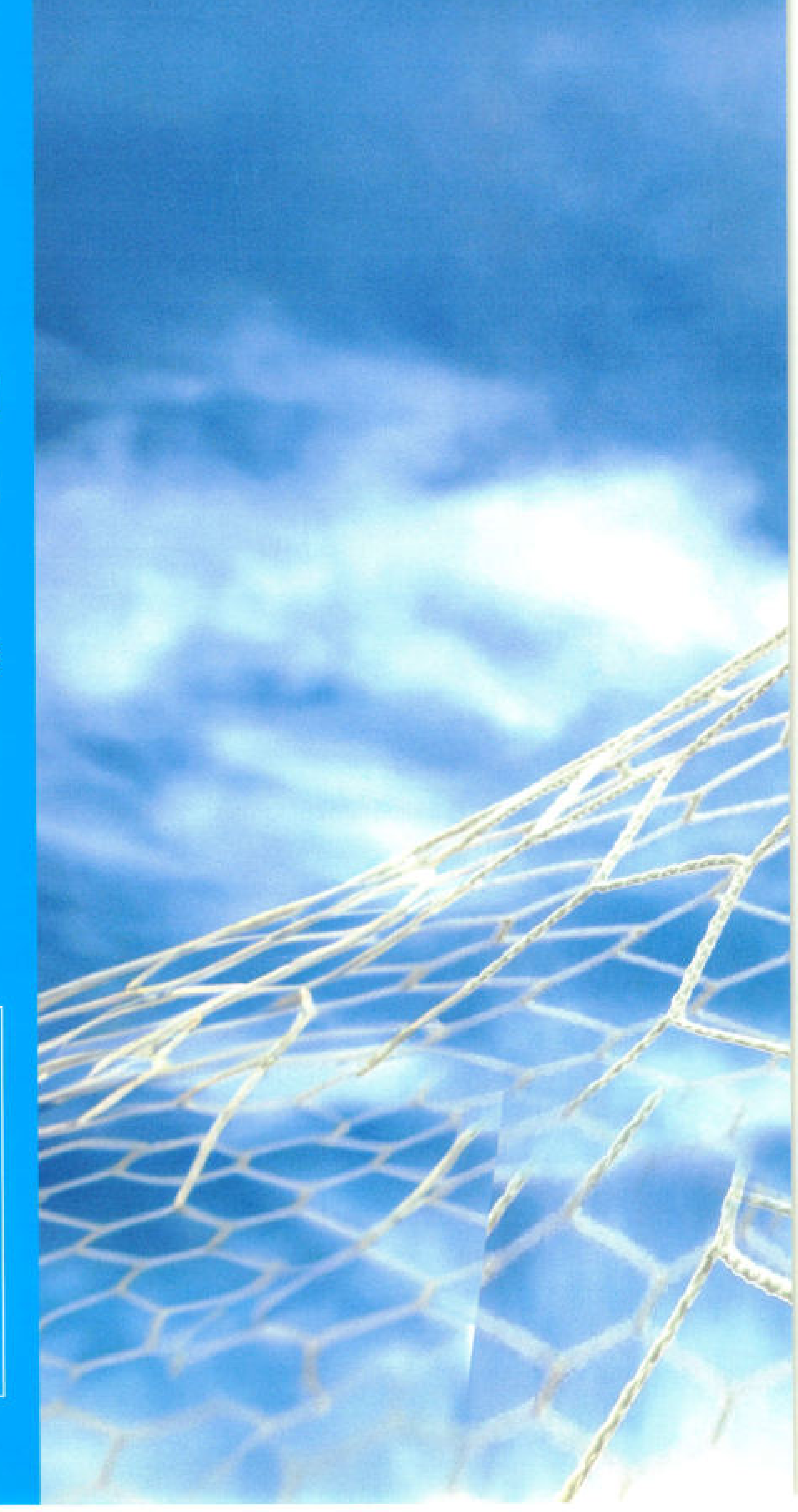
THEME THREE

Fractions, Decimals, and Proportional Relationships

UNIT 11

Data with Fractions

▶ **Concept 1 :**
Creating and Analyzing Graphs



Did you know?!

Egypt have won the African cup of Nations (football competition) most times with the total 7 times. The table provides a list of most winners :

African cup of Nations winners					
Winner	Egypt	Cameroon	Ghana	Nigeria	Algeria
Number of times	7	5	4	3	2

How can you graph these data ?!

Concept 1

Creating and Analyzing Graphs



Lesson No.	Lesson Name	Learning Objectives
Lesson 1	Different Graphs	• Students will distinguish between different types of graphs. • Students will explain the difference between bar graphs and double bar graphs. • Students will explain when it is appropriate to use double bar graphs.
Lessons 2 & 3	Plotting Along	• Students will explain why data might include fractions. • Students will construct a line plot using data with fractions. • Students will analyze a line plot using data with fractions.
	Breaking the Bar	• Students will construct a bar graph using data with fractions. • Students will analyze a bar graph using data with fractions. • Students will construct a double bar graph using data with fractions. • Students will analyze a double bar graph using data with fractions.

Lesson 1

Different Graphs

Remember

You have learned before that data can be represented by more than one way.

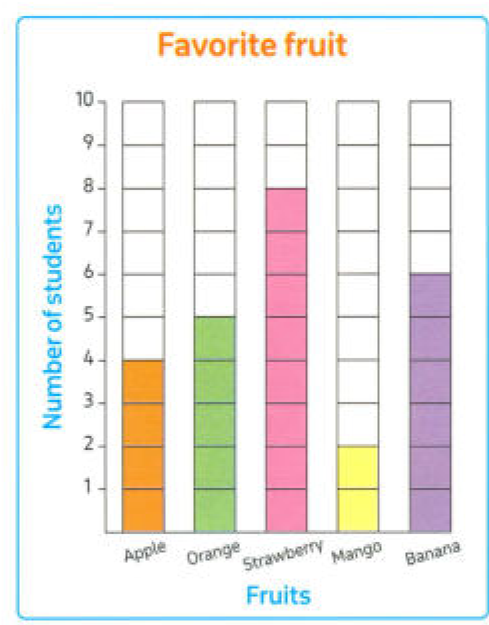
For example :

- These data about students' favorite fruit.

  Sandra represented the following data by a bar graph.



Favorite fruit	
Fruits	**Number of students**
Apple	4
Orange	5
Strawberry	8
Mango	2
Banana	6



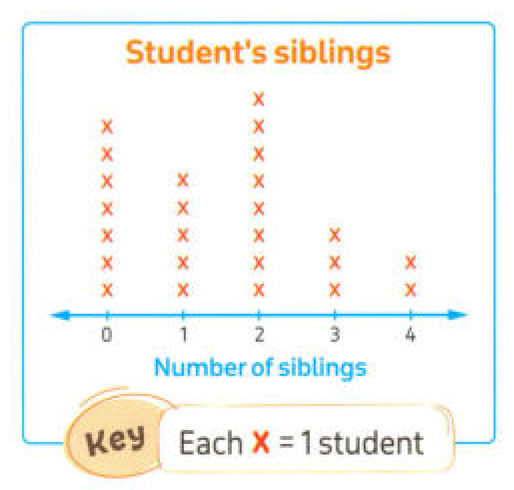
A bar graph is used to compare data.

Another example :

- These data about siblings [brothers and sisters]

  Amgad represented the following data by a line plot.

Student's siblings	
Siblings	**Number of students**
0	7
1	5
2	8
3	3
4	2



A line plot compares data by showing clusters of information.



Notes for parents :

- Remind your child how he/she can represent data by a bar graph and a line plot.

Example 1

Observe the given graph and answer the following questions.

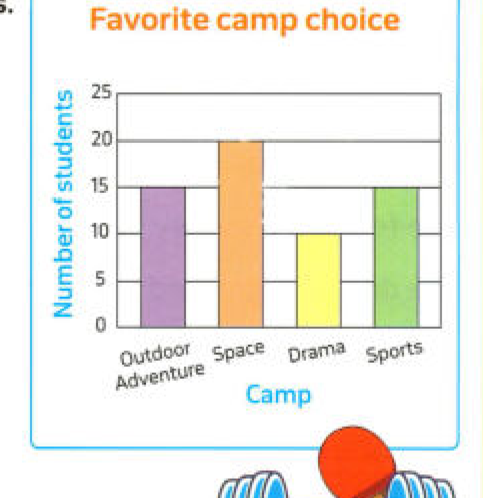
a. Which camp do most students prefer ?

b. Which camp was chosen by the fewest students ?

c. How many students chose space camp ?

d. How many more students chose space camp than sports camp ?

e. Which two camps were chosen by the same number of students ?



Solution 

a. Space.

b. Drama.

c. 20 students.

d. $20 - 15 = 5$ students.

e. Outdoor adventure and sports.

Example 2

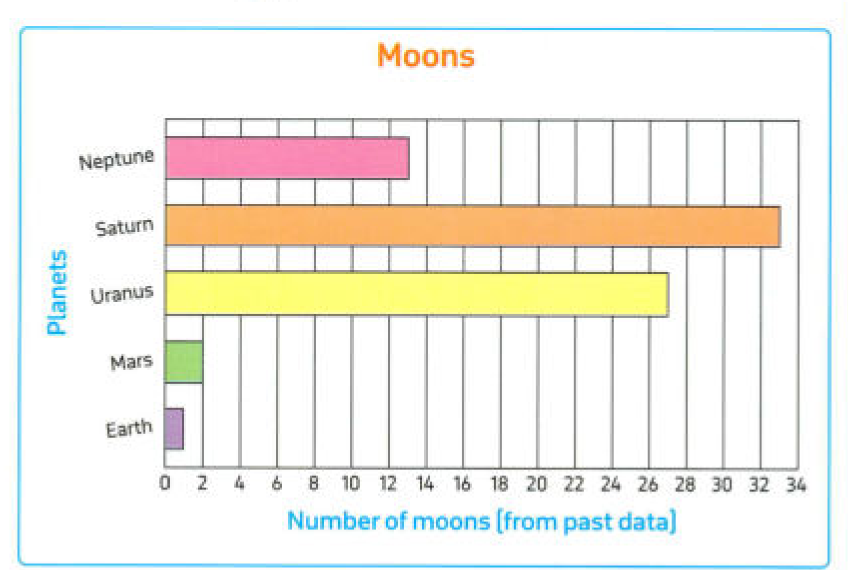
Observe the given graph and answer the following questions.

a. Which plant has the lowest number of moons ?

b. What is the number of moons around Mars ?

c. Which planet has less moons than Neptune but more than Earth ?

d. Which planet has more moons than Mars but fewer than Uranus ?



Solution 

a. Earth.

b. 2 moons.

c. Mars.

d. Neptune.

• Ask your child to review the elements of the bar graph and to point to each part.

Learn 1 Double bar graph

A double bar graph uses two different-colored or shaded bars to compare two similar sets of data that can be counted.

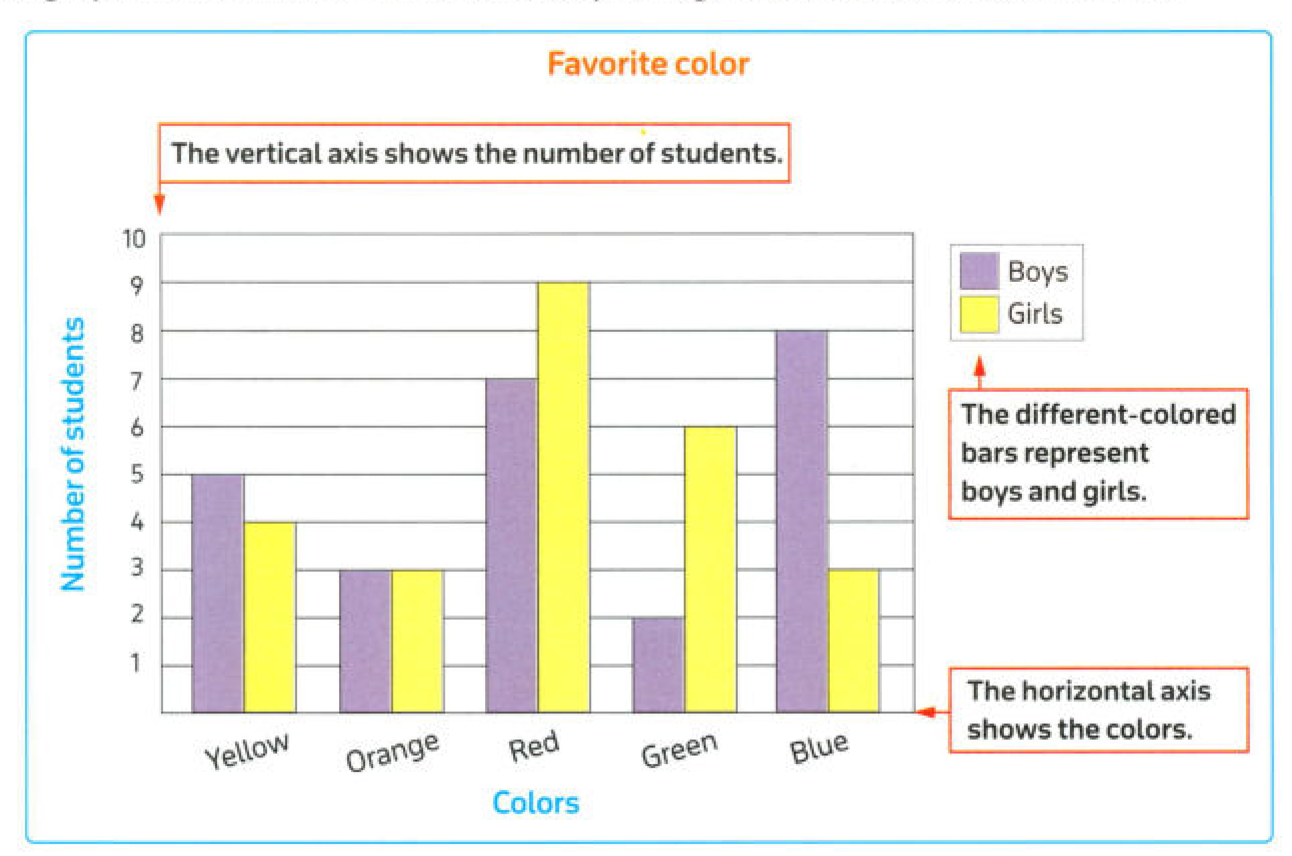
For example :

The following survey shows student's favorite color for 25 boys and 25 girls.

The data is organized in a table.

Favorite color		
Colors	**Boys**	**Girls**
Yellow	5	4
Orange	3	3
Red	7	9
Green	2	6
Blue	8	3

The graph below shows the number of boys and girls voted for their favorite color.



Notes for parents :

• Let your child explain the difference between bar graph and double bar graph.

The same data can be converted from the vertical format into horizontal format.

Favorite color

The vertical axis shows the colors.

The different-colored bars represent boys and girls.

The horizontal axis shows the number of students.

Boys
Girls

Colors

Yellow
Orange
Red
Green
Blue

1 2 3 4 5 6 7 8 9 10

Number of students

Example 3

Observe the given graph and answer the following questions.

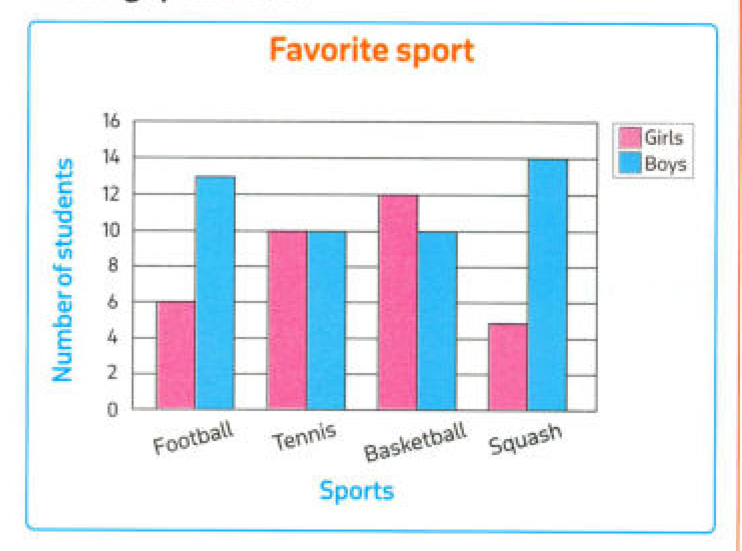
a. Which is the most preferred sport of the girls ?

b. Which is the most preferred sport of the boys ?

c. How many girls like squash ?

d. Which sport is liked by 10 girls ?

e. How many students like basketball ?



Solution 

a. Basketball.

b. Squash.

c. 5 girls.

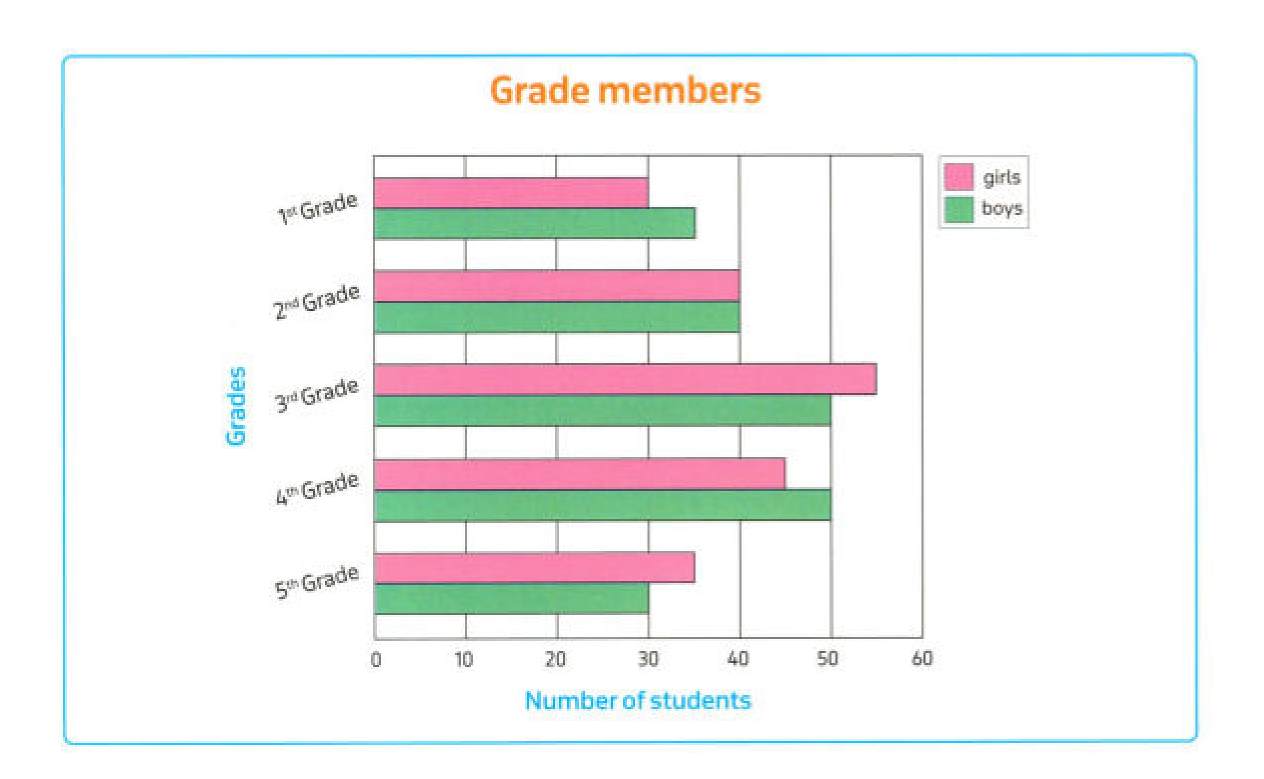
d. Tennis.

e. $12 + 10 = 22$ students.

• Let your child explain when it is appropriate to use double bar graphs.

Example 4

Observe the given graph and answer the questions below.



a. What is the number of boys in 4^{th} grade ?

b. What is the number of students in 3^{rd} grade ?

c. What is the difference between the number of boys in 4^{th} grade and in 2^{nd} grade ?

d. Which grade has the lowest number of boys ?

e. Which grade has the highest number of girls ?

f. Which grade has the same number of boys and girls ?

Solution

a. 50 boys.

b. $50 + 55 = 105$ students.

c. $50 - 40 = 10$ boys.

d. 5^{th} Grade

e. 3^{rd} Grade

f. 2^{nd} Grade

Notes for parents :

• Help your child answer the questions about data.

Learn 2 Choose an appropriate graph

The type of graph used to display data depends upon the type of information you want to show.

The best graph to represent the given data

Bar Graph



Bar graph is used to compare things between different groups or to track change over large periods of time with one group surveyed.

Examples of data can be represented by bar graph :

- Favorite animal or pet.
- Favorite color or sport.
- Favorite food or fruit.
- Favorite season.
- Favorite subject.
- Student marks.

Line Plot

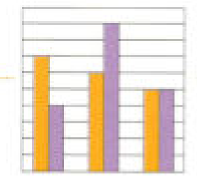


Line plot is used to show the frequency of data on a number line.

Examples of data can be represented by line plot :

- Data involving measurements such as :
  length, time, distance, height, or weight.
- Number of siblings.
- Number of pets.

Double Bar Graph



Double bar graph is used to display two sets of data on the same graph using two different colors to compare the two categories.

Examples of data can be represented by double bar graph :

- Favorite color between boys and girls.
- Favorite food between boys and girls.
- Students marks of two subjects.
- Highest and lowest temperature of some cities.
- Saved amounts during months between two persons.

The four main elements to graph the data :

1. Title.
2. Labels for each axis.
3. Scale with increments accurately marked.
4. A key if needed.

• Help your child distinguish between different types of graph.

Example 5

Choose the best answer.

a. Sara collected data about the number of books each child read between two months May and June.

Which type of graph would best to display these data ?

A. Bar graph **B.** Pictograph
C. Double bar graph **D.** Line plot

b. Amir collected data about the number of family members for each child at his class.

Which type of graph would best to display these data ?

A. Bar graph **B.** Pictograph
C. Double bar graph **D.** Line plot

Solution 

a. Double bar graph

b. Line plot

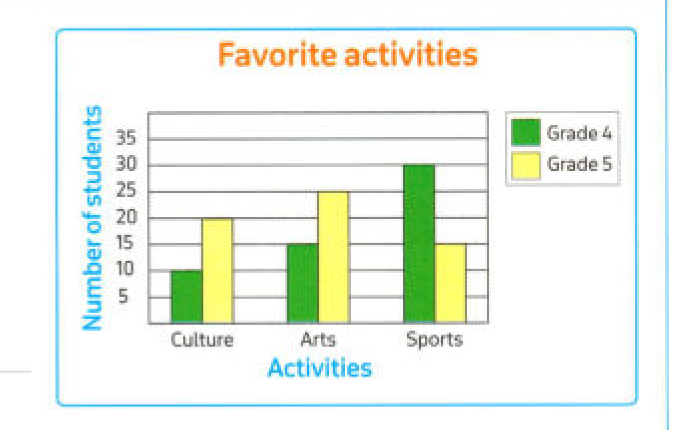


Check your understanding

1. Which type of graph would be best to represent the highest and the lowest temperature degrees in Cairo for 5 days ?

A. Bar graph **B.** Pictograph **C.** Double bar graph **D.** Line plot

2. The following double bar graph shows the favorite activities for grade 4 and grade 5 in a primary school. Notice the double bar graph and answer the questions.



a. Which activity is the most preferred of grade 4 ?

b. Which activity is the most preferred of grade 5 ?

c. How many students chose arts in grade 5 ?

d. Which activity is chosen by 40 students ?

e. Calculate the difference between the number of students of grade 4 and grade 5 in sports activities.

Notes for parents :

- Make sure that your child understand that double bar graphs are used to make comparisons between and among sets of data.

Exercise 15 on lesson 1

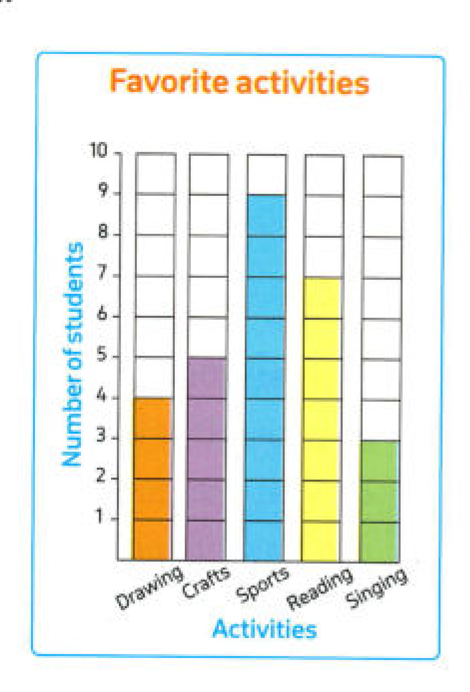
Different Graphs

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. The following graph shows students' votes for their favorite activities.

Complete the following table. Then, answer the questions.

	Favorite activities				
Activity	Drawing	Crafts	Sports	Reading	Singing
Number of students					



a. Which activity did the most students prefer ?

b. Which activity was chosen by the fewest students ?

c. How many students chose reading ?

d. How many more students chose sports than crafts ?

e. Which two activities their sum equals the number of students chose sports ?

2. The following graph shows students' votes for their favorite animals.

Answer the following questions.

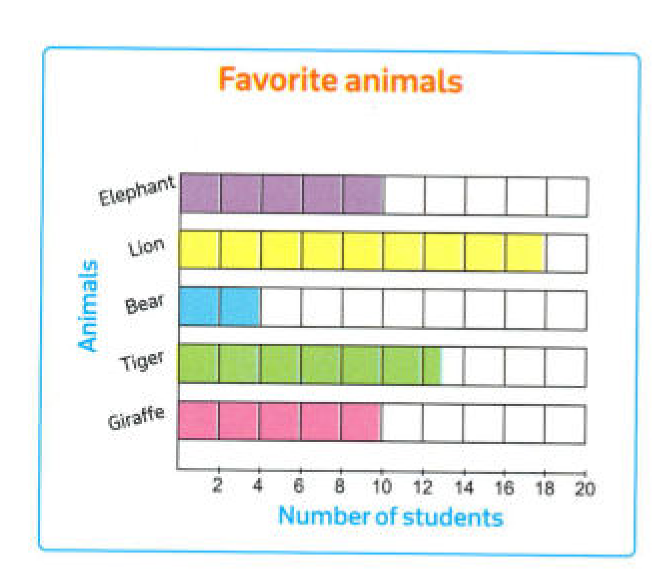
a. Which animal is liked the most ?

b. Which animal is liked the least ?

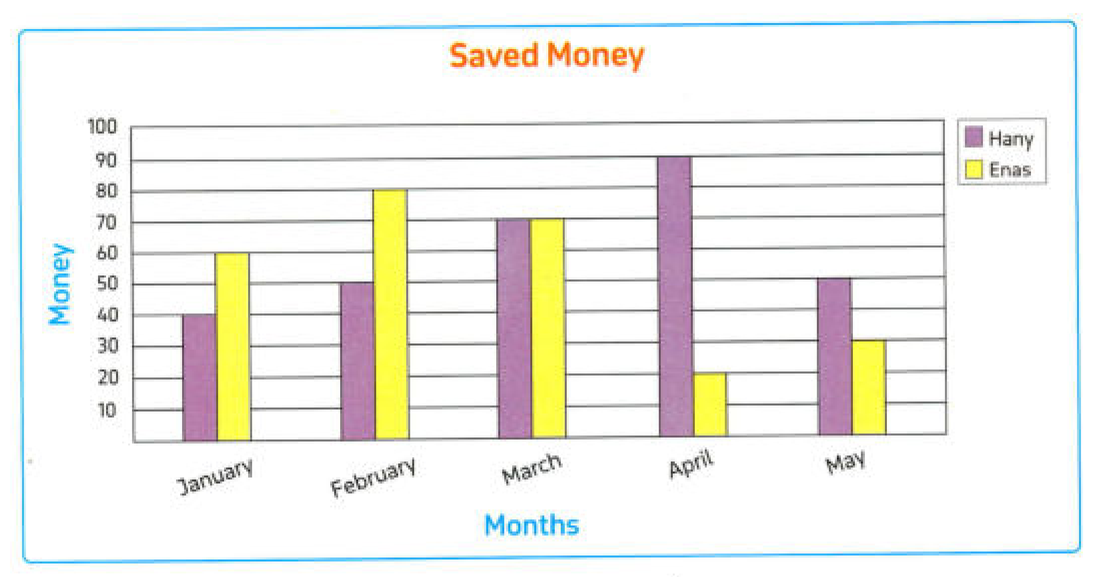
c. How many students liked tiger ?

d. Which two animals were liked by the same number of students ?

e. How many more students liked tiger than bear ?



3. **The following double bar graph shows the sum of money in pounds which Hany and Enas saved in 5 consecutive months. Observe the graph , then answer the questions.**



a. What is the highest amount did Hany save ? Which month ?

b. What is the highest amount did Enas save ? Which month ?

c. What is the total saved amount in February ?

d. What is the difference between their amounts in April ?

e. What is the total amount did Hany save in all ?

f. What is the total amount did Enas save in all ?

g. Which month did Hany and Enas save the same amount ?

h. Who saved the most ? Who saved the least ?

---

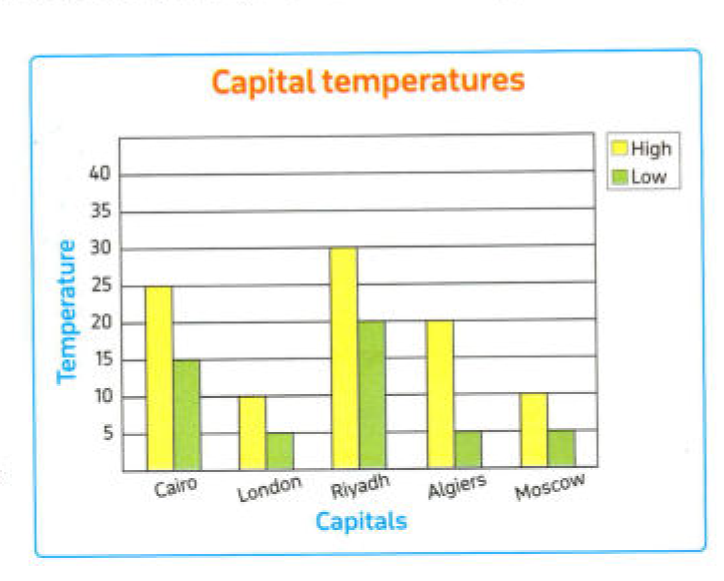
4. **The following double bar graph shows the highest and lowest temperature degrees in some of the world's capitals in a day. Observe the graph, then answer the questions.**

a. Which capital had the highest temperature ?

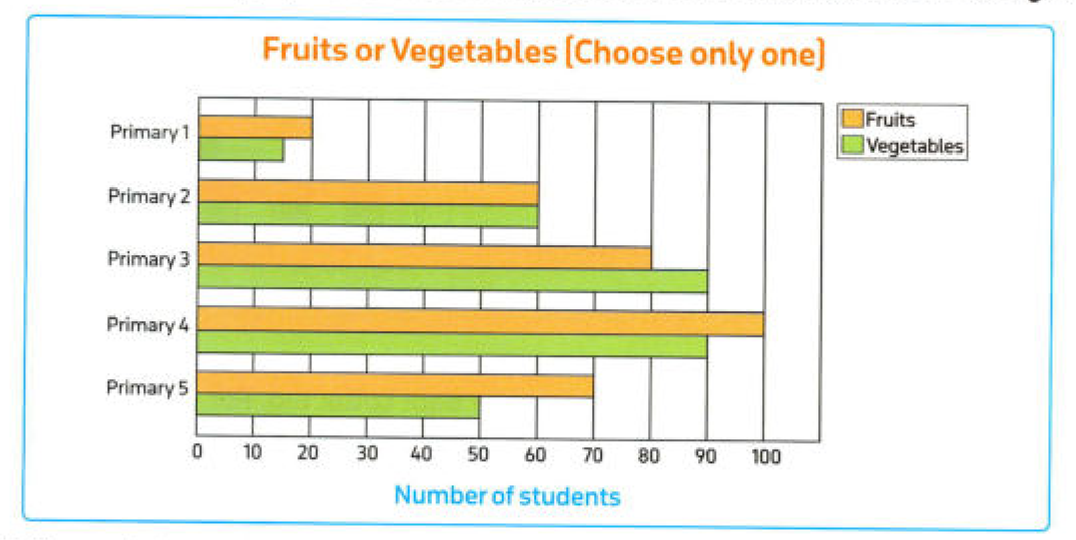
b. What is the lowest temperature in Cairo ?

c. Calculate the difference between the highest and lowest temperature in Algiers.

d. Calculate the difference between the highest temperature between Cairo and Moscow.



5. Use the double bar graph to answer the questions about what students in each grade prefer.



a. Which grade has the same number of students who like fruits and vegetables ?

b. Which grade likes vegetables more than fruits ? (Alex. 23)

c. How many more students in Primary 4 like fruits versus students in Primary 1 ?

d. How many students like fruits in both Primary 1 and 2 ?

e. How many more students in Primary 2 and Primary 3 like vegetables than in Primary 4 and Primary 5 ?

f. How many total students were surveyed ?

g. Why is this a good data set to use a double bar graph ?

---

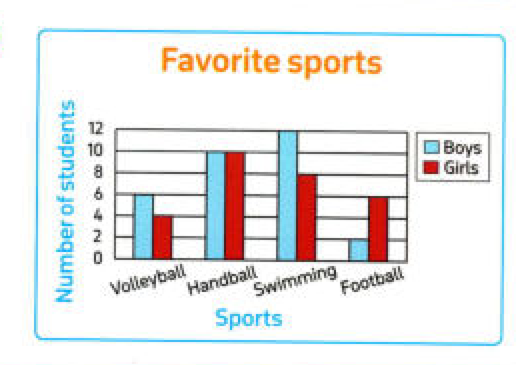
6. By using the opposite graph. (Luxor 23, Souhag 23)

a. How many boys prefer swimming ?

____

b. How many girls prefer volleyball ?

____



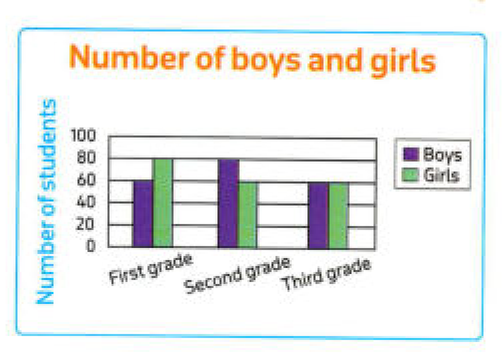
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7. Use the following double bars graph to answer the questions. (Giza 23)

a. What is the number of boys in first grade ?

b. What is the number of girls in third grade ?

c. In which grade the number of boys is equal to the number of girls ?

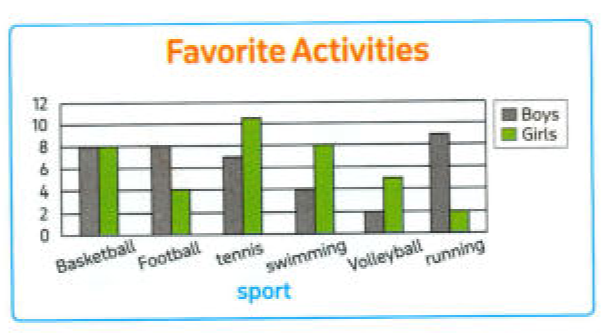


8. **The following data shows the favorite activities between boys and girls, study the graph, then answer the questions.** [Cairo 23]

a. How many boys liked football ? ....

b. How many girls liked swimming ? ....

c. Which sports shows the same number of boys and girls ? ....



9. **Single or Double ?** **Look at each table and the data collected. For each table, decide if the data could be presented in a double bar graph. Record your answer and your reasoning.**

Table 1 Minimum and Maximum Monthly Temperature in Cairo.

Month	Minimum	Maximum
January	9	19
February	10	20
March	12	24
April	15	28

Could this data be represented in a double bar graph ?

Table 2 Favorite sports.

Sport	Number of students
Soccer	48
Basketball	24
Swimming	32
Gymnastics	12

Could this data be represented in a double bar graph ?

Table 3 Favorite foods.

Food	Boys	Girls
Baklawa	25	18
Fteer Meshaltet	17	12
Ful Medames	20	26
Tamiya	11	16

Could this data be represented in a double bar graph ?

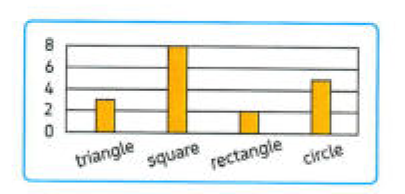
10. Answer the following questions.

a. Write three different ways for representing data. [El-Monofia 23]

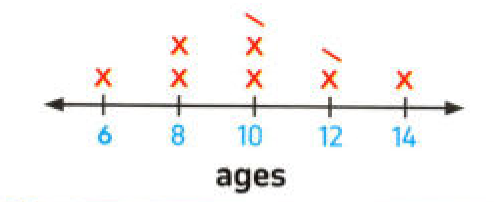
[1] ________ [2] ________ [3] ________

b. From the opposite graph :

Find the number of squares. [Giza 23]



c. By using the opposite line plot, find the number of children whose ages are 10 years old. [Aswan 23]



Key Each × = stands for 2 childern

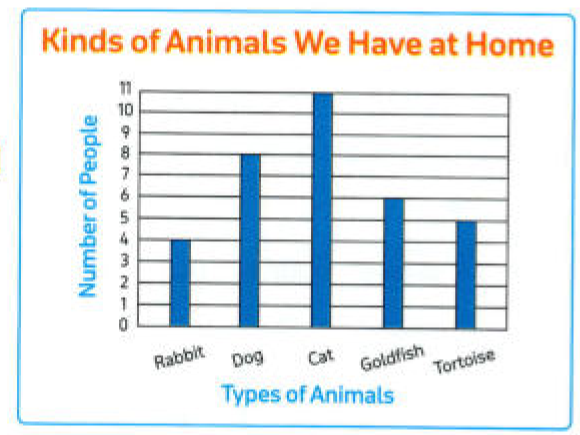
d. The table shows the internet usage for four friends in hour.

Who use the internet the least time ? [Alex. 23]

Name	Saly	Fady	Amira	Ali
No. of hours	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{1}{3}$	1

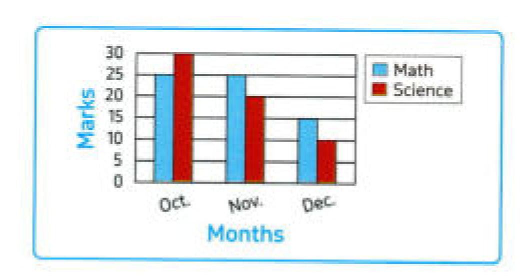
e. In the following bar graph :

Find the number of people who like dog. [Port Said 23]



f. The following graph shows Ali's marks in Math and Science over three months.

In which month does Ali get the greatest mark in Science ? [Alex. 23]



Multiple Choice Questions

Choose the correct answer.

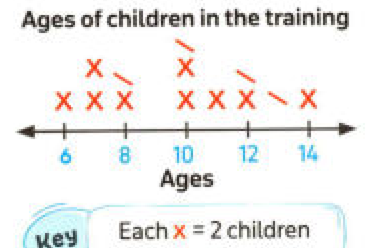
1. The opposite graph shows mark for four students, which student got lowest mark? [Ismailia 23]



A. Farida B. Samah
C. Alaa D. Yara

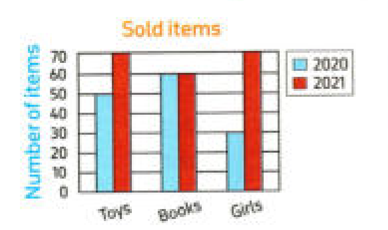
2. The opposite graph shows a ______ [Alex. 23]

A. line plot
B. double bar
C. pictograph
D. bar graph



3. The opposite graph shows ______ [Aswan 23]

A. pictograph
B. line plot
C. bar graph
D. double bar graph



4. The following table can be represent by ______ [El-Beheira 23]

Subject	Arabic	Math	Science	English
Boys	30	35	39	40
Girls	25	40	39	30

A. line plot B. bar graph
C. pictograph D. double bar graph

5. Which type graphs is suitable for this data? [El-Monofia 23]

Name	Ali	Ola	Nora
Age	13	17	15

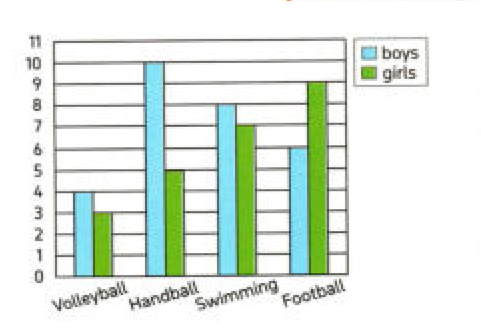
A. double bar graph B. line plot
C. bar graph

6. The horizontal and vertical lines of graph are called ______ [El-Monofia 23, Alex. 23]

A. titles
B. axes
C. keys
D. number of sets

7. The number of girls in handball equals? [El-Beheira 23]

A. 4
B. 10
C. 7
D. 5

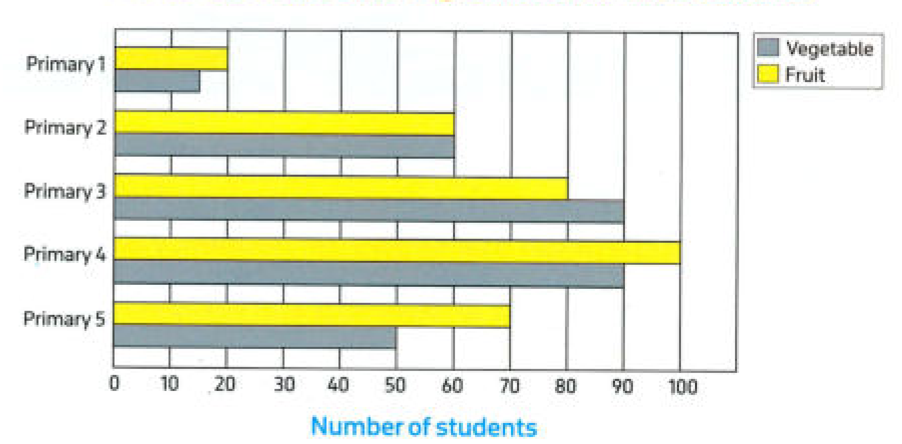


8. Which of the following can be represented by a line plot? [El-Monofia 23]

A. Our favorite movie
B. Our favorite animal
C. Our height
D. Our favorite food

9. From the following graph :

Favourite fruits and vegetables for the students



a. Which grade like vegetables more than fruits ? [Giza 22, Port Said 23]

A. Primary 1 B. Primary 2 C. Primary 3 D. Primary 4

b. What is the total number of students who like vegetables and fruits in grade 4 ? [El-Beheira 23]

A. 30 B. 120 C. 170 D. 190

10. Which of the following can be represent by double bar graph ? [Souhag 23]

A. Sleeping hours every night
B. Favorite food
C. Maximum and minimum temperature in different cities.
D. Length of 5 things on your desk.

11. Which of the following can be represented by a double bar graph ? [El-Beheira 23]

A. Favourite animal
B. Our shoe sizes
C. Marks of friends in Math and Arabic
D. Favourite color

12. ________ is the representation of data through individual columns. [Alex. 23]

A. Bar graph
B. Double bar graph
C. Pictograph
D. Line plot

13. To represent the number of walking hours for Ahmed and Hassan in one week you can use ________ [Ismailia 23]

A. line plot B. double bar
C. pictograph D. bar line

14. When the data is numbers, use ________ to represent on the number line. [Aswan 23]

A. bar graph
B. double bar graph
C. pictograph
D. line plot

15. To compare between rainfall in Egypt in the two years 2022 and 2023, we use ________ [Kafr El-Sheikh 23]

A. pictograph B. line plot graph
C. double bar graph D. bar graph

Lessons 2 & 3

▸ Plotting Along
▸ Breaking the Bar

Learn 1 Line plot with fractions

A line plot is a graph that shows the frequency of data along a number line, a line plot is used to represent and compare data.

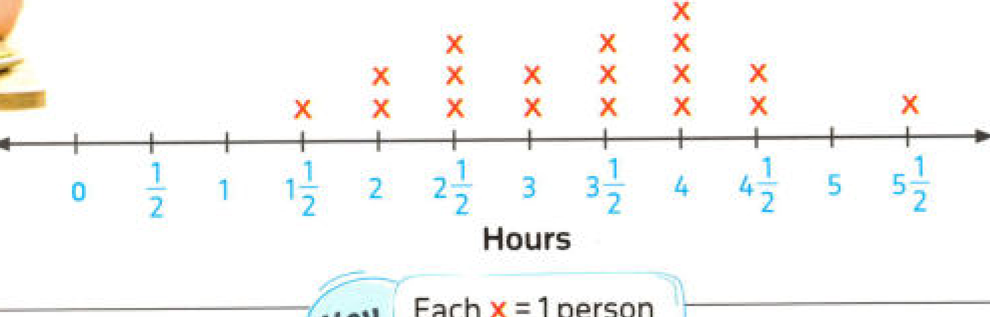
Farid collected data about the number of hours spent doing homework of his friends to the nearest $\frac{1}{2}$ of hour and the data was as follows :

4	2	$3\frac{1}{2}$	$4\frac{1}{2}$	3	$3\frac{1}{2}$
$2\frac{1}{2}$	4	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$5\frac{1}{2}$
4	3	$2\frac{1}{2}$	$4\frac{1}{2}$	4	$3\frac{1}{2}$

Hint

These data contains fractions, it can be represented by a line plot using a number line its interval increases by $\frac{1}{2}$.

Farid represented these data by a line plot.



Key Each x = 1 person

Notice

Line plot often used when the data shows numbers or measurements such as :

- Lengths.
- Number of members.
- Number of siblings.
- Hours.
- Weights.
- Number of pets.

Notes for parents :

• Help your child construct a line plot using data with fractions.

Example 1

Amgad has a farm, and just received a shipment of young tomato plants. He wanted to get a clear view of the lengths of plants he received to the nearest $\frac{1}{4}$ dm.

He recorded the lengths in dm as follows :

	$3\frac{3}{4}$	$4\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{1}{2}$	$3\frac{1}{2}$	4
$4\frac{1}{4}$	$4\frac{1}{2}$	4	$3\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{4}$	$3\frac{3}{4}$
$3\frac{1}{2}$	$4\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{1}{2}$	$4\frac{1}{4}$	3	$4\frac{1}{4}$

Represent these data by a line plot, then answer the following questions.

a. Which plant height occurred most often ?

b. Which heights were recorded for the same number of plants ?

c. How many plants did Amgad measure all together ?

d. What was the height of each of the tallest and the shortest plants ?

e. How many total plants measured 4 dm to $4\frac{1}{2}$ dm ?

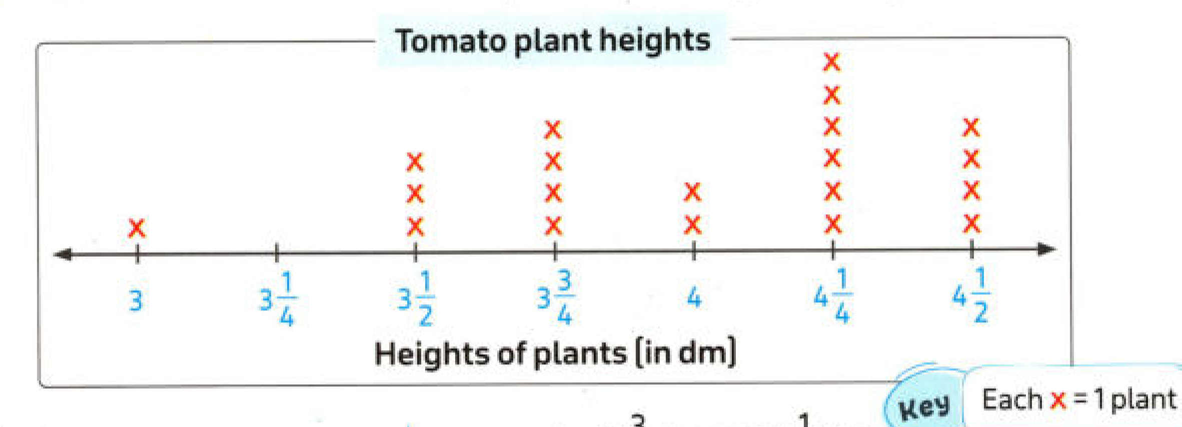
f. How many more plants were $4\frac{1}{4}$ dm than $3\frac{1}{2}$ dm ?

Solution

To represent these data by a line plot follow the steps.

Step 1 : Draw a number line. The shortest length is 3 dm and the tallest length - is $4\frac{1}{2}$ dm, So you can use a scale of 3 to $4\frac{1}{2}$ and an interval of $\frac{1}{4}$, then write a title.

Step 2 : Put an "X" above the number that represents the length of each plant.



a. $4\frac{1}{4}$ dm

b. $3\frac{3}{4}$ dm and $4\frac{1}{2}$ dm

c. 20 plants.

d. $4\frac{1}{2}$ dm and 3 dm

e. $2 + 6 + 4 = 12$ plants.

f. $6 - 3 = 3$ plants.

• Ask your child to think when fractions could be used in a graph.

Learn 2 Construct a double bar graph

Double bar graph helps to compare or present more than one kind of information, situations, or events instead of just one by using bars.

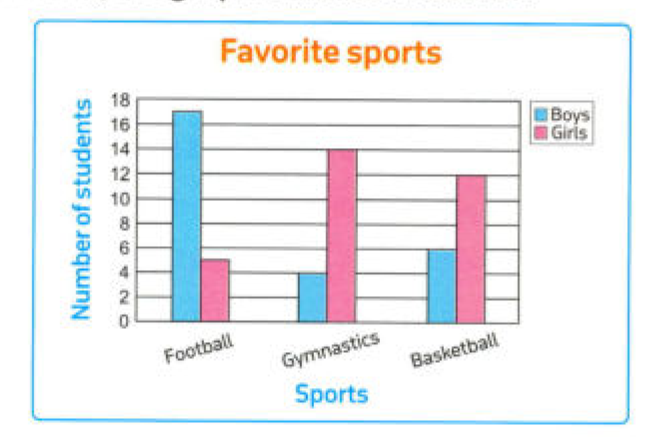
Here is a table of data shows the favorite sports for boys and girls.

Favorite sports		
Sport	Boys	Girls
Football	17	5
Gymnastics	4	14
Basketball	6	12

You can follow these steps to represent the above data, the graph will be as follows:

How to construct a double bar graph?

1. Decide what title you will give the graph.
2. Decide if you want horizontal or vertical bars.
3. Choose a suitable scale.
4. Put labels on the axes.
5. Draw the bars.
6. Give two different colors for differentiating the two bars.



Hint

Most data contains even numbers. So, scale of 2 is more suitable.

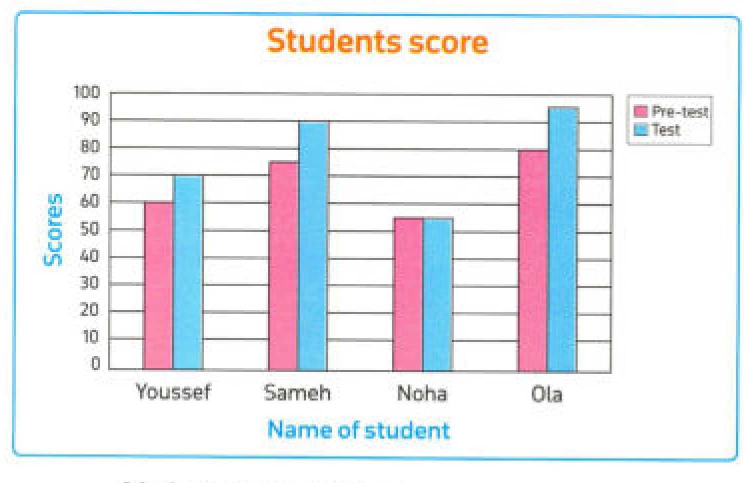
Example 2

The opposite table shows the scores obtained by the four friends Youssef, Sameh, Noha and Ola in the pre-test and test.

Represent these data by double bar graph.

Students score		
Name of student	Pre-test	Test
Youssef	60	70
Sameh	75	90
Noha	55	55
Ola	80	95

Solution 





Hint

Most data contains big numbers. So, scale of 10 is more suitable.

Notes for parents:

- Help your child choose the suitable scale when he/she construct a double bar graph.

Example 3

The following data shows the walking distance to the nearest $\frac{1}{4}$ kilometer of four friends in two different days.

Day \ Name	Nada	Nader	Hady	Sally
First day	$1\frac{1}{2}$	$\frac{3}{4}$	$2\frac{3}{4}$	2
Second day	$1\frac{3}{4}$	1	$1\frac{1}{4}$	$2\frac{1}{2}$

Represent this data by using a double bar graph, then answer the following questions.

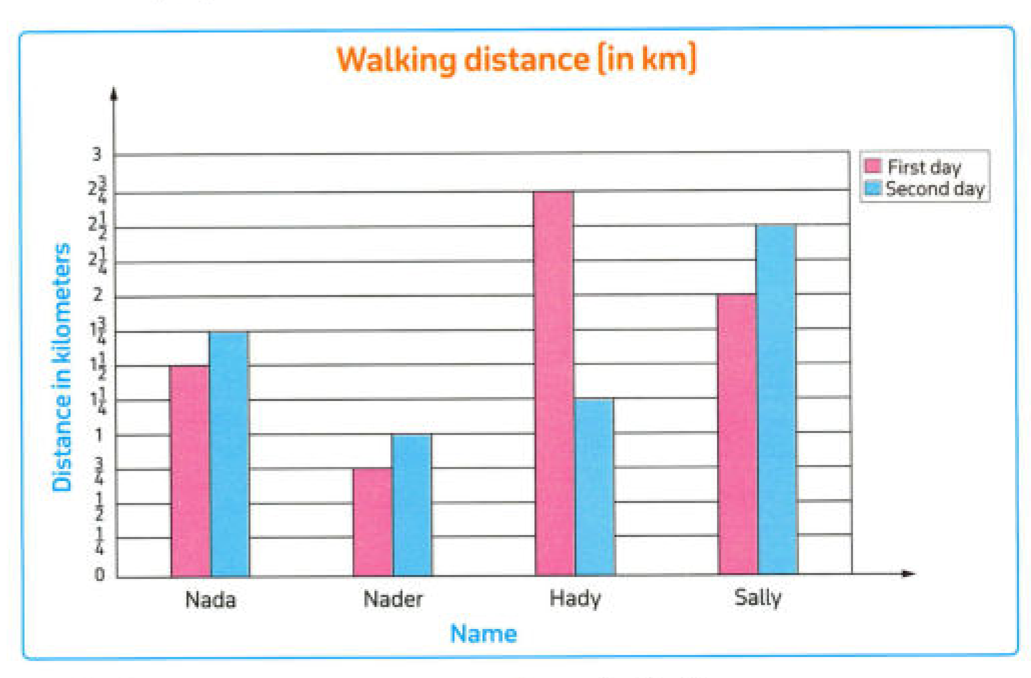
a. Who walked the longest distance in first day ?

b. Who walked the shortest distance in second day ?

c. What is the difference between the longest distance and the shortest distance in second day ?

d. Who walked the same distance as Nada in the second day in the two days ?

Solution 



Hint
Most data contains fractions. So, scale of $\frac{1}{4}$ is more suitable.

a. Hady

b. Nader

c. $2\frac{1}{2} - 1 = 1\frac{1}{2}$ kilometers

d. Nader ($\frac{3}{4} + 1 = 1\frac{3}{4}$ kilometers)

• Help your child to construct a double bar graph using data with fractions.



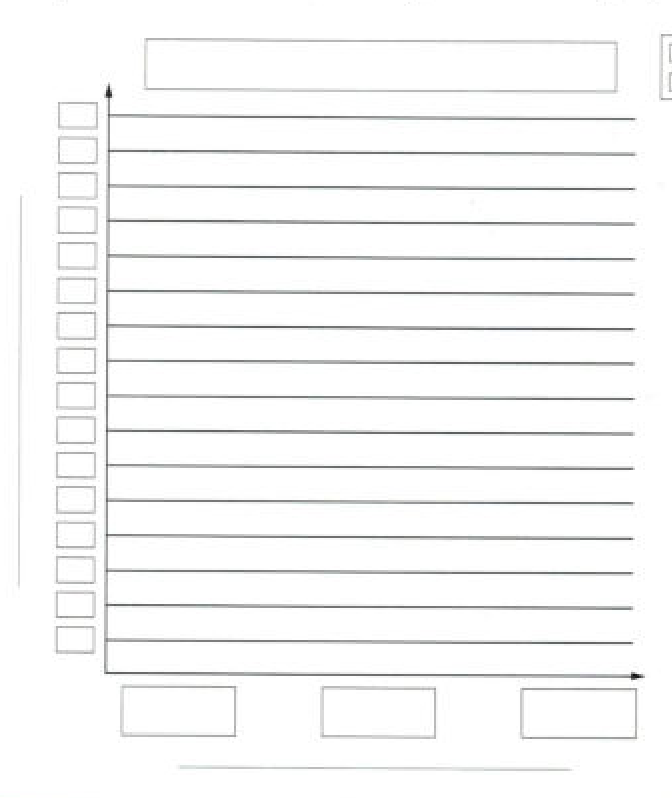
Check your understanding

1. Use the following data to make a line plot.

$6\frac{1}{2}$	7	5	7	7	6	$6\frac{1}{2}$	$7\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$
$5\frac{1}{2}$	6	$6\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	7	5	6	$6\frac{1}{2}$	$5\frac{1}{2}$

2. The following data shows the marks of three students in Mathematics and Science tests and full mark is 10.

Represent these data using double bar graph.



Subject \ Name	Andy	Reem	Nour
Mathematics	7	6	$5\frac{1}{2}$
Science	$7\frac{1}{2}$	$6\frac{1}{2}$	8

Notes for parents :

- Ask your child why a double bar graph would be a good choice to show the data in the second exercise in this page.

Exercise **16** on lessons 2&3

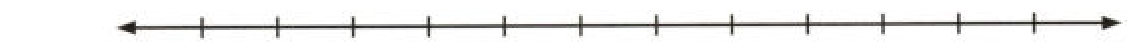
▸ Plotting Along ▸ Breaking the Bar

● REMEMBER ● UNDERSTAND ○ APPLY ⁂ PROBLEM SOLVING | From the school book

First : Line plot

1. Use the following data to create a line plot, then answer the questions.

a. 11 kg ; $12\frac{1}{4}$ kg ; $11\frac{3}{4}$ kg ; $11\frac{1}{2}$ kg ; 12 kg ; $11\frac{1}{2}$ kg ; $11\frac{1}{4}$ kg ; $11\frac{1}{4}$ kg ; $11\frac{1}{2}$ kg ; 12 kg



1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common records ?

b. 3 m ; $3\frac{1}{3}$ m ; $4\frac{1}{3}$ m ; $3\frac{2}{3}$ m ; $3\frac{1}{3}$ m ; $4\frac{2}{3}$ m ; $4\frac{1}{3}$ m; 3 m ; $3\frac{1}{3}$ m ; $4\frac{2}{3}$ m.

1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common record ?

2. Look at the data and think about what scale you will use. How will you organize the fraction data ? Where will your number line begin and end ? Create a line plot for the data.

$1\frac{1}{2}$ km; $2\frac{3}{4}$ km ; 3 km ; $2\frac{3}{4}$ km ; $2\frac{1}{2}$ km ; $2\frac{3}{4}$ km ;

$3\frac{3}{4}$ km ; 3 km ; $3\frac{1}{2}$ km ; $2\frac{1}{2}$ km ; $3\frac{1}{2}$ km ; 1 km

3. The following data shows the ages of nursery's kids to the nearest $\frac{1}{2}$ of year. Represent the data on the line plot. Give the line plot a title.

1	$5\frac{1}{2}$	$2\frac{1}{2}$	2	$3\frac{1}{2}$	1	3
2	4	1	$5\frac{1}{2}$	2	$3\frac{1}{2}$	$2\frac{1}{2}$

Answer the questions.

a. How many children were 1 year old ?

b. How many children were 4 years old ?

c. How many children were 2 years old to $3\frac{1}{2}$ years old ?

d. How many more children were 2 years old than 4 years old ?

e. How many children were at the nursery in all ?

---

4. The following data shows the marks of mathematics test for students. Create a line plot for the given data. Use the line plot to answer the following questions.

18	19	17	$18\frac{1}{2}$	20	$16\frac{1}{2}$	$18\frac{1}{2}$	$19\frac{1}{2}$	$17\frac{1}{2}$	20	17	$18\frac{1}{2}$
17	$17\frac{1}{2}$	$18\frac{1}{2}$	$17\frac{1}{2}$	19	$18\frac{1}{2}$	$17\frac{1}{2}$	17	$18\frac{1}{2}$	20	18	$17\frac{1}{2}$



a. How many students are in all ?

b. What is the least mark ? What is the highest mark ?

c. What is the most common mark did the students get ?

d. How many students got 18 marks or more ?

e. How many more students got $17\frac{1}{2}$ marks than 20 marks ?

f. Write one statement about the data.

---

5. **Going the Distance.** These data shows the distance from home to school for students. The data are given in kilometers. Create a line plot for the given data. Use your line plot to answer the questions. [Souhag 22, Cairo-Heliopolis 22]

Hint

The title is already written. Remember to label your number line and include a key.

$\frac{3}{5}$ km ; $\frac{2}{5}$ km ; $\frac{2}{5}$ km ; $\frac{5}{5}$ km ; $\frac{4}{5}$ km ; $\frac{2}{5}$ km ; $\frac{4}{5}$ km ; $\frac{5}{5}$ km ; $\frac{4}{5}$ km ; $\frac{4}{5}$ km ; $\frac{1}{5}$ km

a. How many students were surveyed ?

b. What is the shortest distance any student lives from school ?

c. What is the farthest distance any student lives from school ?

d. What is the most common distance students live from school ?

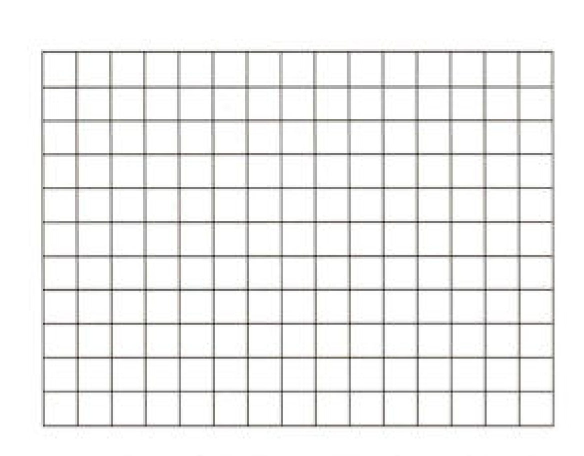
e. What are the least common distances students live from schcool ?

f. Write one statement about the data.

Second : Breaking the bar

6. The following data shows the internet usage for four friends. The data are given to the nearest $\frac{1}{4}$ of hour. Use the following table to complete the bar graph, then answer the questions.

Name	Samer	Amira	Islam	Enas
Number of hours	$\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	2



a. Who uses the internet the most time ?

b. Who uses the internet the least time ?

c. What is the difference between Enas and Samer ?

d. What is the total internet usage of Amira and Samer ?

e. How many more hours did Enas use than Islam ?

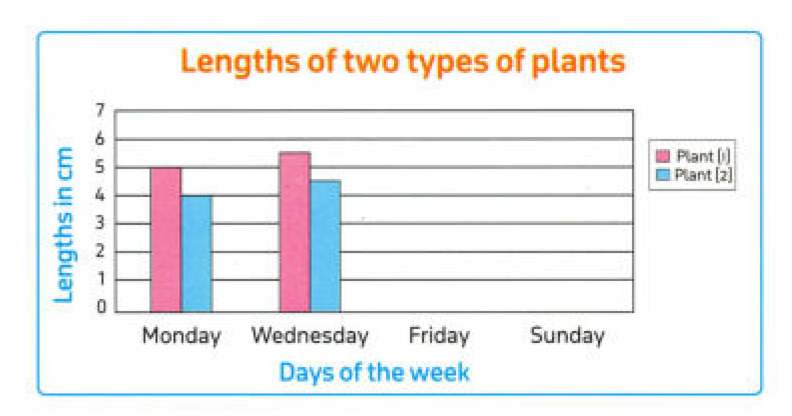
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7. Kamal recorded the lengths of two types of plants in four days as follow :

	Mon.	Wed.	Fri.	Sun.
Plant(1)	5 cm	$5\frac{2}{5}$ cm	6 cm	$6\frac{1}{5}$ cm
Plant(2)	4 cm	$4\frac{2}{5}$ cm	$4\frac{3}{5}$ cm	5 cm

[Qena 22]
[Cairo 22]
[Middle Zone Cairo 22]

a. Use the above data to complete the following graph :



b. In plant (1), what's the amount of increasing in its length from Monday to Sunday ?

8. Marwan made a table to show the marks for his team, the Goldenrods, and the opposing team in the first three exams. What type of graph would be most appropriate for Marwan to use to display these data? Explain.

Marks Scored in Each Exam			
Team	Exam 1	Exam 2	Exam 3
Goldenrods	$30\frac{1}{2}$	$31\frac{1}{4}$	$31\frac{1}{2}$
Opponents	$32\frac{1}{4}$	$30\frac{1}{2}$	$31\frac{1}{4}$

Represent these data by this type of graph, then answer the following questions.

a. Which team has got the highest score in Exam 3?

b. Which team has got the lowest score in Exam 1?

c. What is the difference between the highest scores in Exam 3 and Exam 1?

d. What is the sum of the highest score in Exam 3 and lowest score in Exam 2?

9. The following data shows the walking distance in a week by two friends Bassem and Amal. The data are given in kilometers. Represent these data by a double bar graph showing the week's data. Then use the graph to answer the following questions.

Name \ Days	Sunday	Monday	Tuesday	Wednesday	Thursday
Bassem	$2\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{3}{4}$	3	$3\frac{1}{2}$
Amal	$1\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{4}$	4

a. Which day Bassem walked the longest distance?

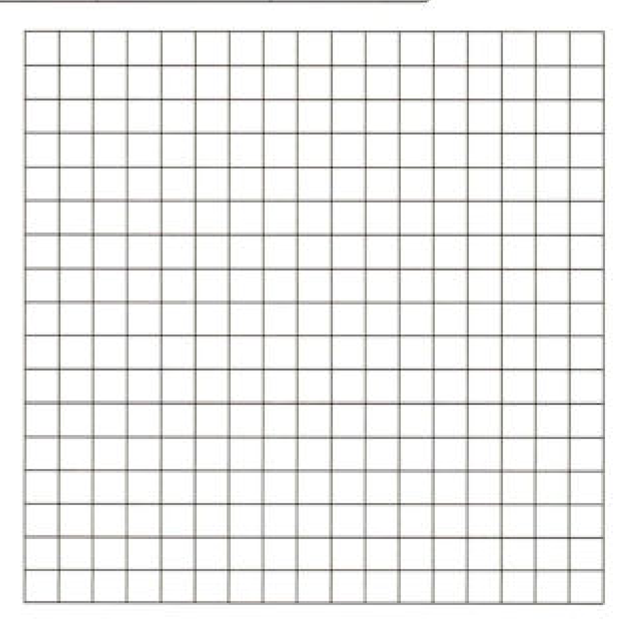
b. Which day Amal walked the shortest distance?

c. On which day did Bassem and Amal's total distance equals 4 kilometers?

d. How many total kilometers did Amal walk in all?

e. How many total kilometers did Bassem walk in all?

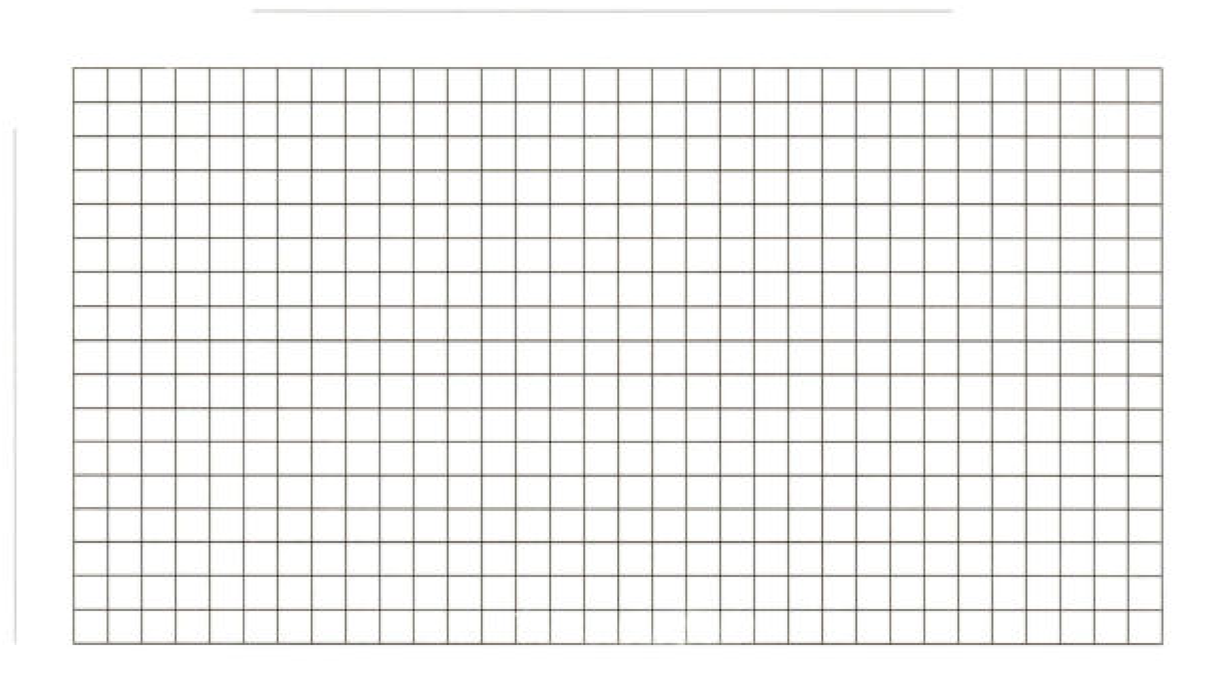
f. On which day did Bassem walk twice as far as he did in Monday?



10. **Rolling , Rolling , Rolling Part 1.** Omar and Malek conducted an experiment. They wanted to see how far their friends could roll a heavy ball. They drew a starting line in the dirt and asked six friends to roll a 10 kilograms ball as far as they could from the starting line. They measured the distance in meters to the nearest $\frac{1}{4}$ meter and record their data in a table.

Student	Distance for 10 kg Ball (in m)
Rana	$\frac{3}{4}$ m
Salah	$1\frac{1}{2}$ m
Tahani	$1\frac{1}{4}$ m
Ziad	$2\frac{1}{4}$ m
Farouk	$1\frac{3}{4}$ m
Walid	$2\frac{1}{2}$ m

Create a bar graph that shows Omar and Malek's data. Remember to include all the elements of a bar graph.



Now, write two questions about the bar graph you created and then answer them.

Question 1 :

Question 2 :

• **Rolling, Rolling, Rolling Part 2.** Omar and Malek decided to see how far the same students could roll an 8-kilograms ball and compare the data they collect to the data for the 10-kilograms ball.

Student	Distance for 10 kg Ball (in m)	Distance for 8 kg Ball (in m)
Rana	$\frac{3}{4}$ m	$1\frac{1}{4}$ m
Salah	$1\frac{1}{2}$ m	2 m
Tahani	$1\frac{1}{4}$ m	2 m
Ziad	$2\frac{1}{4}$ m	$3\frac{1}{2}$ m
Farouk	$1\frac{3}{4}$ m	$2\frac{1}{2}$ m
Walid	$2\frac{1}{2}$ m	$3\frac{1}{4}$ m

a. Add this new data to your graph from Part 1, so that you can compare each student's two rolls.

When finished , answer the following questions about the double bar graph data.

b. Which students rolled the 8 kilograms ball exact $\frac{1}{2}$ a meter farther than they rolled the 10 kilograms ball ?

c. Which student had the biggest difference between the 10 kilograms ball roll and the 8 kilograms ball roll ?

d. What is the sum of Ziad and Farouk's 8 kilograms rolls ?

e. Looking at the data , what could you infer would happen if the students rolled a 6 kilograms ball. Explain your reasoning.

f. Pick two students and find the total distance of both of their rolls (10 kilograms and 8 kilograms).

Unit Eleven Assessment



1 Choose the correct answer.

a. Which of the following can be represented by a line plot ?

A. Our favorite sports. B. Our favorite colors.

C. Our weights. D. Our favorite food.

b. Which of the following can be represented by a double bar graph ?

A. Favorite animal. B. Marks of friends in Math.

C. Marks of friends in Math and Arabic. D. Our heights.

c. To represent the number of walking hours for Ahmed and Hassan in one week you can use ______

A. line plot. B. pictograph. C. double bar graph. D. bar graph.

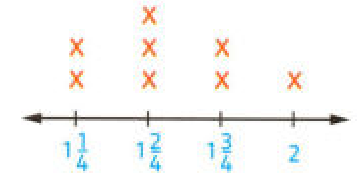
d. Maged collected some data about the favorite pet of his friends. Which kind of representing data is the best ?

A. Line plot. B. Double bar graph. C. Bar graph.

e. In the opposite figure, the number which is the most repeated is ______ [Alex. 23]

A. 1 B. $1\frac{3}{4}$

C. $1\frac{2}{4}$ D. $1\frac{1}{4}$



f. Which type of graph is suitable for these data ? [Souhag 23]

A. Line plot B. Bar graph

C. Double bar D. Otherwise

Name	Ahmed	Nora	Ola	Ali
Age	13	17	15	10

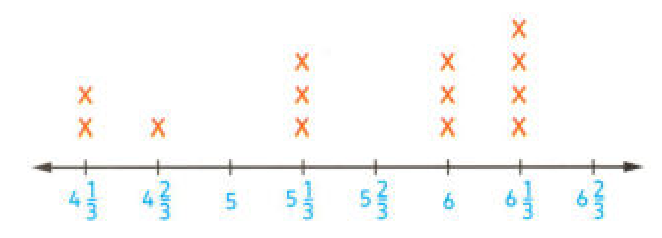
g. Which type of graph is suitable for these data ?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

A. Double bar graph. B. Line plot. C. Bar graph.

2 **First : Complete :**

a. From the following line plot, the number which is the most repreated is ______ [Ismailia 23]



b. The represent graphically for comparing heights and lowest temperature degrees for some cities is ______ [El-Beheira 23]

c. The type of graph which is suitable to represent the opposite data is ______

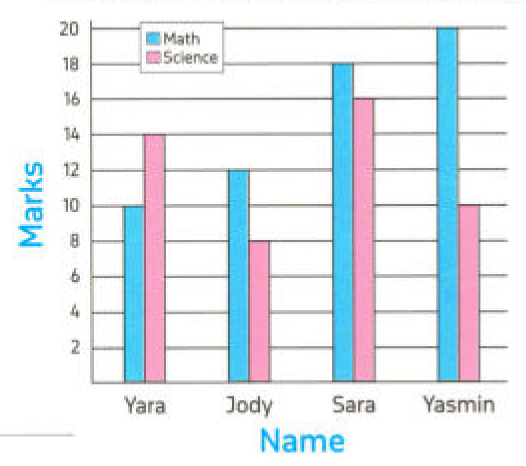
Name	Samy	Omar	Karim
Age	28	33	17

[Kafr El-Sheikh 23]

d. The favorite fast food of boys and girls represents graphically by using ______ [Kafr El-Sheikh 23]

Second : The opposite graph shows the marks of four students in Math and Science tests.

Complete from (a) to (d).



a. The student who got the highest mark in Math is ______

b. The difference between the Math mark and Science mark of Yasmin is ______

c. The student who got the lowest mark in Science is ______

d. The total marks of Math and Science of Sara is ______

3 **Choose the correct answer.**

a. Which type of graph is suitable to represent these data ?

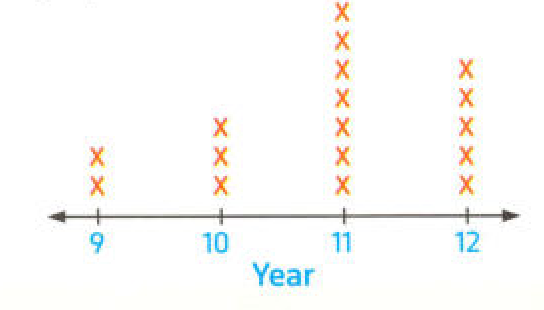
Number of hours	0	1	2	3	4	5
Number of students	2	4	10	11	3	1

A. Double bar graph. B. Line plot. C. Bar graph.

b. In the opposite line plot, if it represents the ages of 40 students in grade 4, then each X stands for ______ student[s].

A. one B. two

C. three D. four



c. Which type of graph is suitable to represent these data ?

1	3	2	5	1	4
3	2	4	1	3	1
2	1	3	4	1	5

A. Double bar graph.

B. Line plot.

C. Bar graph.

d. From the opposite table, the value of X is ______

Books Readers	
Name	**Number**
Amgad	4
Ola	5
Nora	10
Alaa	X
Noha	2
Total	**30**

A. 6 B. 7

C. 8 D. 9

e. The suitable graph representation to compare between two groups is ______ [Alex. 23]

A. bars B. double bars C. line plot D. pictograph

f. Which type of graph is suitable to represent these data ?

Test Evaluation	
Evaluation	**Total**
Excellent	2
V.good	8
Good	6
Pass	4

A. Double bar graph.

B. Line plot.

C. Bar graph.

g. From the opposite table, the value of X is ______

Subject Marks	
Subject	**Number**
Math	X
English	13
Arabic	15
Science	11
Music	6
Total	**50**

A. 6 B. 4

C. 5 D. 6

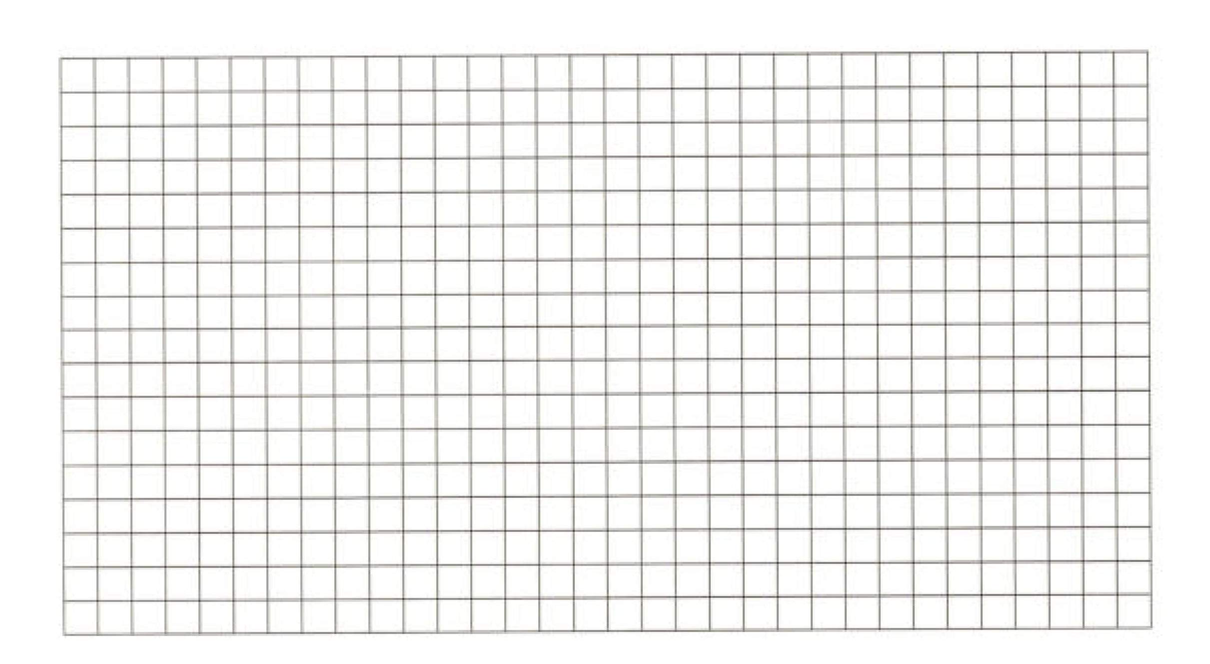
4 **Answer the following.**

a. Use the following data to make a line plot.

$5\frac{1}{2}$	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
4	3	5	$5\frac{1}{2}$	$3\frac{1}{2}$	4	6	6	4	5

b. The following data shows the number of study hours in a week by Eslam and Mina. Represent these data by a double bar graph.

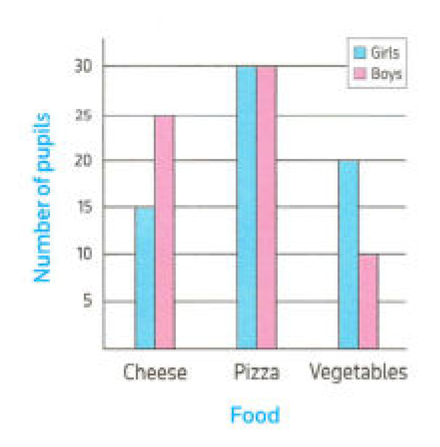
Days / Name	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.
Eslam	3	4	$5\frac{1}{2}$	5	3	5	$3\frac{1}{2}$
Mina	$3\frac{1}{2}$	3	5	6	$4\frac{1}{2}$	$6\frac{1}{2}$	2



c. The opposite graph represents the favorite food to boys and girls in grade four.

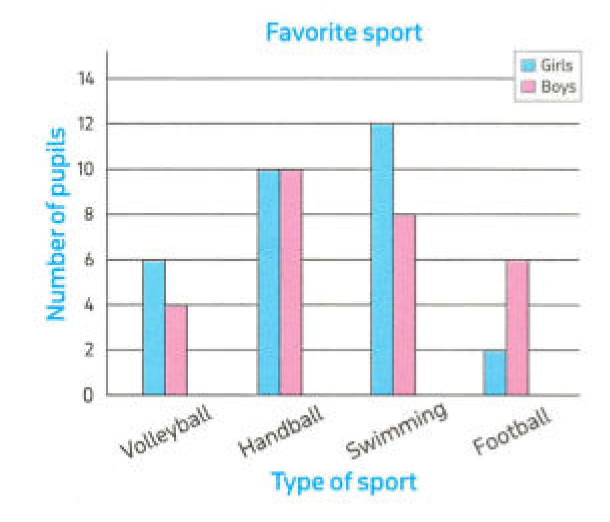
Answer the questions.

1. What is the number of girls in grade four ?
2. What is the number of boys who liked cheese ?
3. Which type of food that liked by the same number of boys and girls ?
4. What is the difference between the number of boys and girls who liked vegetables ?



d. Complete the table.

puplis / sport	Volleyball	Handball	Swimming	Football
Boys	4	......	......	......
Girls	......	......	......	2



Then answer the question :

What is the most sport boys are prefer ?

(El-Beheira 23)



THEME FOUR
Applications of Geometry and Measurement

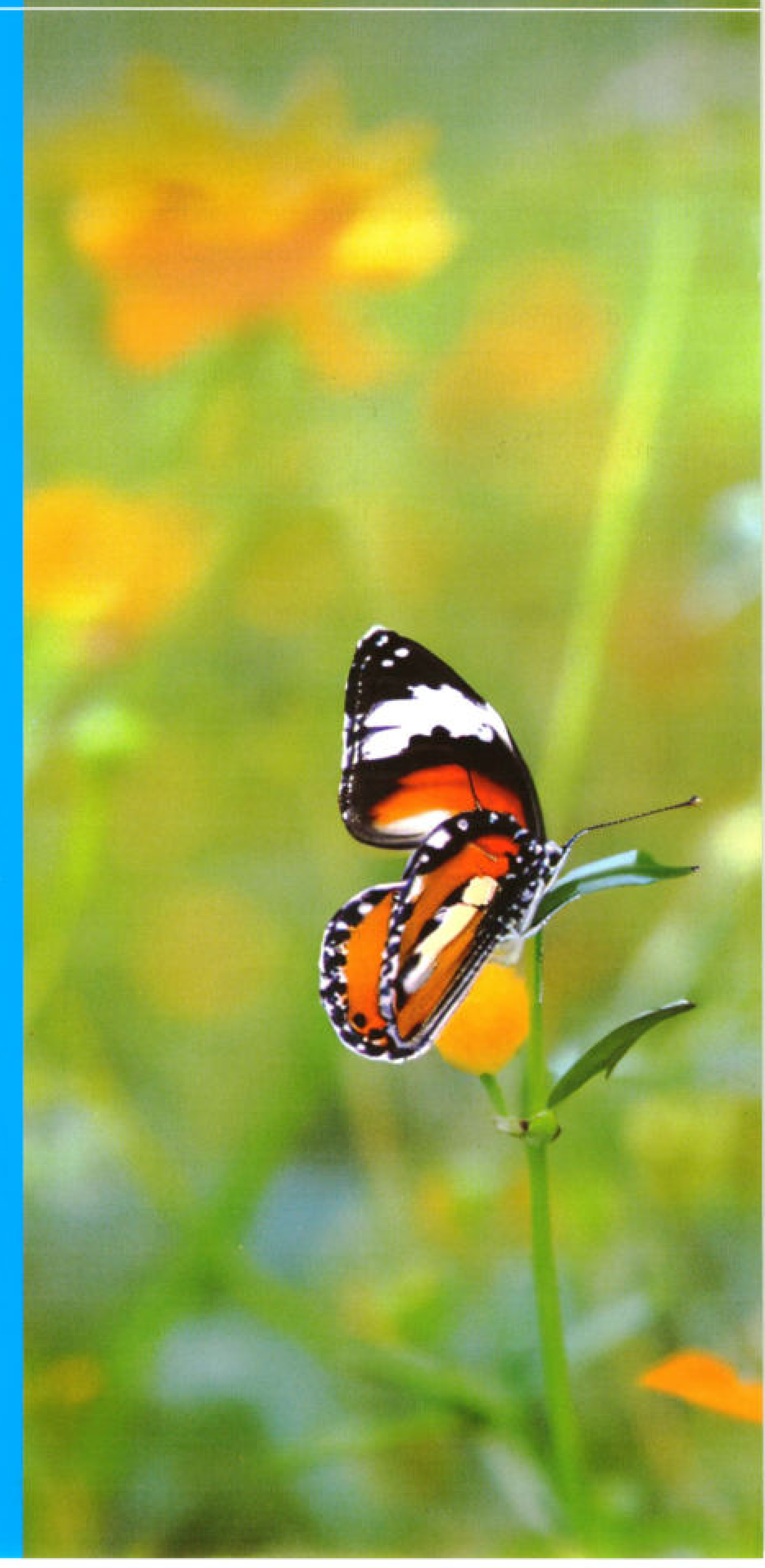
UNIT 12

Geometry

- **Concept 1 :** Geometric Concepts
- **Concept 2 :** Classifying Shapes

Did you know ?!

*Butterfly wings are beautiful examples of **symmetry** in nature, which means that the wings on one side of the body match the wings on the opposite side of the body. Instead of the word match, let's say the wings are mirror images of each other.*



Concept 1

Geometric Concepts

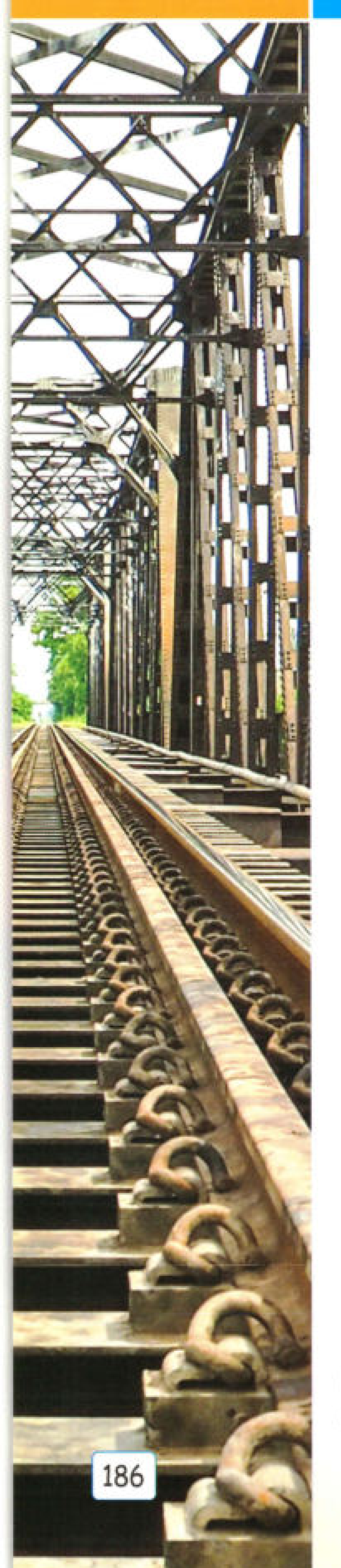


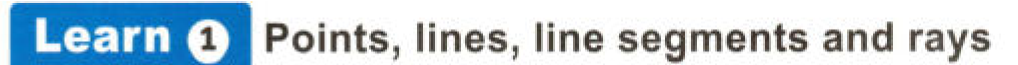
Lesson No.	Lesson Name	Learning Objectives
Lessons 1 & 2	Points, Lines, Line Segments and Rays	• Students will identify points, lines, line segments, and rays. • Students will draw points, lines, line segments, and rays.
	The Relation between Two Lines	• Students will identify intersecting, parallel and perpendicular lines. • Students will draw intersecting, parallel and perpendicular lines.
Lessons 3 & 4	Symmetry	• Students will identify lines of symmetry in two-dimensional figures. • Students will draw lines of symmetry in two-dimensional figures.
	Real-World Geometry	• Students will apply geometry concepts to solve real-world problems.

Lessons

1 & 2

▸ Points, Lines, Line Segments and Rays
▸ The Relation between Two Lines





Learn 1 Points, lines, line segments and rays

Points, lines, rays, and line segments are basic geometric concepts. Artists, engineers, and architects use these concepts in the development of buildings and structures.

Term and definition	What you draw	What you say	What you write
A **point** is an exact location in space.	•A	"point A"	A (or Point A)
A **line** is a straight path of points that goes on forever in two directions. It has no endpoints.	←•B———•C→	"line BC" "named by two points"	$\overleftrightarrow{BC}$ (or $\overleftrightarrow{CB}$)
A **line segment** is a part of a line. It has two endpoints and all the points between them. It is the shortest distance between two points.	•B———•C	"line segment BC" "named by two endpoints"	$\overline{BC}$ (or $\overline{CB}$)
A **ray** is a part of a line. It has one endpoint and extends forever in only one direction.	•B———•C→	"ray BC" "named by a starting point and a point in the ray direction"	$\overrightarrow{BC}$

Notice that

- A ray extends in only one direction.

A ———— B →

Ray AB [$\overrightarrow{AB}$] starts at A and goes on in the direction of B.

← A ———— B

Ray BA [$\overrightarrow{BA}$] starts at B and goes on in the direction of A.

$\overrightarrow{AB}$ not the same as $\overrightarrow{BA}$

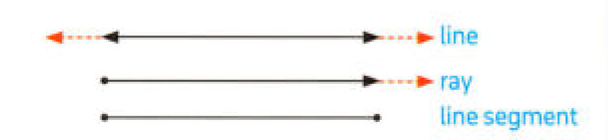
Notes for parents :

- Ask your child about the differences among the line, the line segment and the ray.



Notes

- Points, line segments, rays, and lines are plane figures.
- A plane is a flat surface that goes on forever in all directions. Imagine the plane as a sheet of paper extending forever in all directions.
- Planes have an infinite number of points and lines.
- Shapes on a plane have only two dimensions.
- A line extends infinitely in the two directions, but a ray extends infinitely in one direction, while line segment does not extend.



Example 1

Write the name for each.

a. S T

b. X Y

c. E F

d. M N

e. G



Solution

a. Line ST ($\overleftrightarrow{ST}$) or line TS ($\overleftrightarrow{TS}$)

b. Ray XY ($\overrightarrow{XY}$)

c. Line segment EF ($\overline{EF}$) or line segment FE ($\overline{FE}$)

d. Ray NM ($\overrightarrow{NM}$)

e. Point G (G)

Example 2

Draw and label an example of each.

a. line BC ($\overleftrightarrow{BC}$)

b. line segment PQ ($\overline{PQ}$)

c. ray GH ($\overrightarrow{GH}$)



Solution

a. B C

b. P Q

c. G H

Check your understanding

Write the name for each.

a. I J ______

b. K L ______

c. U V ______

d. R ______

• Ask your child what geometric figure is somewhat like the surface of the water ?

Learn 2 The relation between two lines

Some lines are given special names depending on their relationship with other lines.
These terms can also be applied to line segments and rays.

The relation	What you see or draw	What you say
Parallel lines never cross and stay the same distance apart.	A C B D	line AB is parallel to line CD "$\overleftrightarrow{AB}$ is parallel to $\overleftrightarrow{CD}$"
Intersecting lines pass through the same point.	G F E N H	line EF intersects line GH at point N "$\overleftrightarrow{EF}$ intersects $\overleftrightarrow{GH}$"
Perpendicular lines are intersecting lines that form four square corners. Where they cross (intersect).	N O M P L This symbol means that this is a square corner to tell you that these lines are perpendicular.	line OP is perpendicular to line NL at point M "$\overleftrightarrow{OP}$ is perpendicular to $\overleftrightarrow{NL}$"

Notes

- Line segments and rays can also be parallel, intersect or perpendicular to each other depending on their relationship.
- Parallel lines never intersect or cross and two small arrows were drawn in the same directions to show that the two lines are parallel.
- All perpendicular lines are also intersecting.

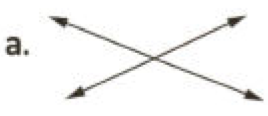


Notes for parents :

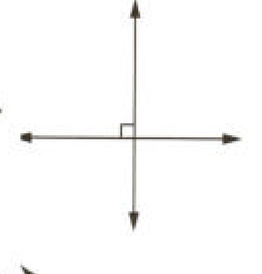
- Ask your child : Are all perpendicular lines also intersecting ? Are all intersecting lines also perpendicular? let him/her explain his/her answer.

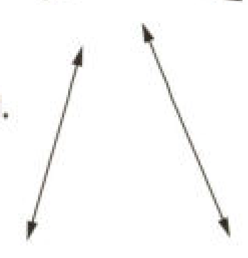
Example 3

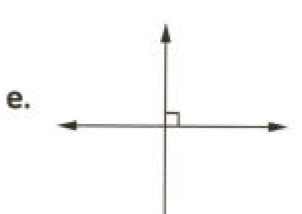
Notice each pair of the following lines. Write "parallel, intersecting or perpendicular".

a. 

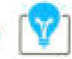
b.

c. 

d. 

e. 

f. 

Solution 

a. Intersecting

b. Parallel

c. Perpendicular

d. Intersecting

e. Perpendicular

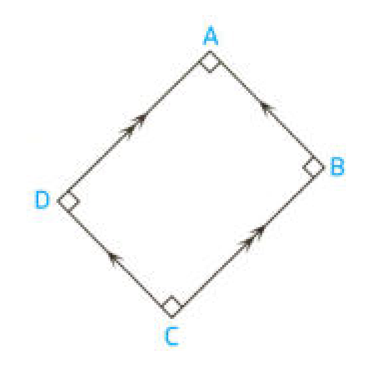
f. Intersecting 

Example 4

In the diagram at the right, identify :

a. A pair of perpendicular line segments.

b. A pair of parallel line segments.



Solution 

a. $\overline{AB}$ and $\overline{AD}$ or $\overline{BA}$ and $\overline{BC}$ or $\overline{CB}$ and $\overline{CD}$ or $\overline{DC}$ and $\overline{DA}$

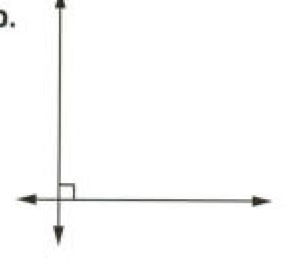
b. $\overline{AB}$ and $\overline{DC}$ or $\overline{BC}$ and $\overline{AD}$

 **Check your understanding**

Write the name of each pair of lines "parallel, intersecting or perpendicular".

a. 

____

b. 

____

c. 

____

- Ask your child give you examples from our life for parallel lines and perpendicular lines.
- Ask your child : Are a horizontal line and a vertical line in the same plane parallel, perpendicular or neither ? Explain.

Exercise 17
on lessons 1&2

▸ Points, Lines, Line Segments and Rays
▸ The Relation between Two Lines

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

First : Points, lines, line segments and rays.

1. Complete.

a. The opposite figure is called ________ (figure: line through Y and Z with arrows at both ends) [Port Said 23]

b. The figure ————▸ is called ________ [Assiut 23]

c. The figure •————• is named ________

d. ________ has a starting point and no endpoint. [Port Said 23]

e. ________ has no endpoints.

f. ________ has two end points.

2. Write all the names for the opposite line.



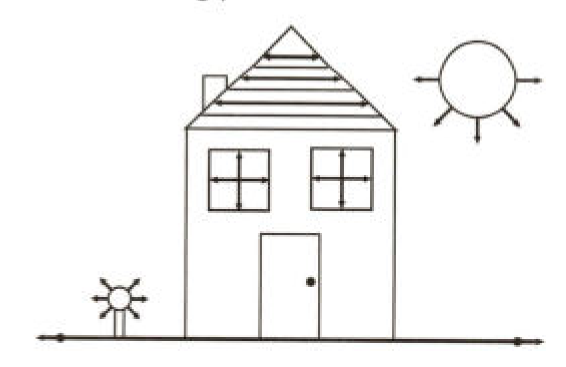
____

3. Matching rays, line segments and lines.
Draw a line matching the word, picture and symbol for each ray, line segment or line.

a. (figure: B, C)	line YZ	$\overleftrightarrow{YZ}$
b. (figure: C, B)	line segment BC	$\overrightarrow{BC}$
c. (figure: Z, Y)	line BC	$\overrightarrow{YZ}$
d. (figure: Y, Z)	Ray BC	$\overline{BC}$
e. (figure: Y, Z)	line segment YZ	$\overleftrightarrow{BC}$
f. (figure: C, B)	Ray YZ	$\overline{YZ}$

4. **House of Rays, Line segments, and Lines.** Look at the following picture.

- Trace any lines you see in green.
- Trace any rays you see in orange.
- Trace any line segments you see in blue.
- Add additional images to the drawing using at least one ray, one line segment, and one line.



5. **Draw and label an example of each.**

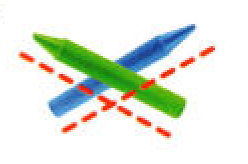
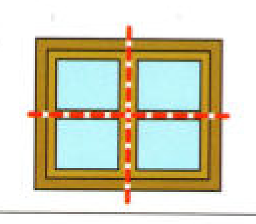
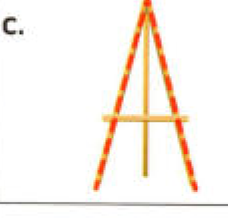
a. Point F	b. line GH	c. $\overleftrightarrow{XY}$
d. Ray ST	e. $\overrightarrow{AB}$	
f. line segment XY	g. $\overline{DC}$	

6. **Write about Math.** Identify a line, a ray and a line segment.
Explain the difference between a line, a ray and a line segment.

7. **Write about Math.** What will happen if you extend a line segment in one direction? What will happen if you extend a line segment in both directions? Draw pictures to support your thinking.

Second : The relation between two lines

8. **Choose the name for each pair of lines.**

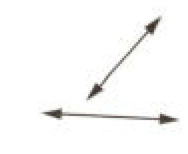
a.	b.	c.	d.
			
Parallel Intersecting	Parallel Perpendicular	Intersecting Perpendicular	Parallel Intersecting

9. **Intersecting or Not ?** Look at the pairs of lines and rays in the pictures below. For each picture, extend the lines or rays see if they are intersecting or parallel.

Hint : Rays can only extend in one direction.

a.  ....

b.  ....

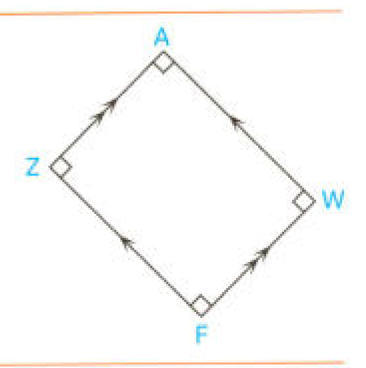
c.  ....

d.  ....

e.  ....

f.  ....

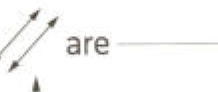
10. **In the figure at the right, identify.**



a. A pair of parallel line segments.

b. A pair of perpendicular line segments.

11. **Complete.**

a. The two lines  are .... [Luxor 23]

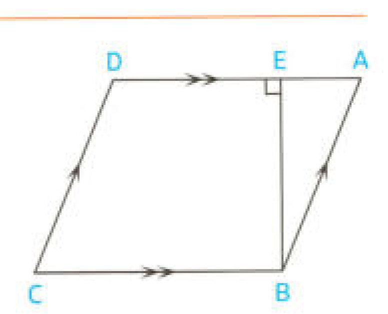
b. The two lines ✛ are .... [Giza 23]

c. The two perpendicular straight lines make .... square corners. [Kafr El-Sheikh 23]

d. The two .... lines cannot intersecting. [El-Monofia 23]

e. All perpendicular lines are also ....

12. **Complete using the opposite figure.**



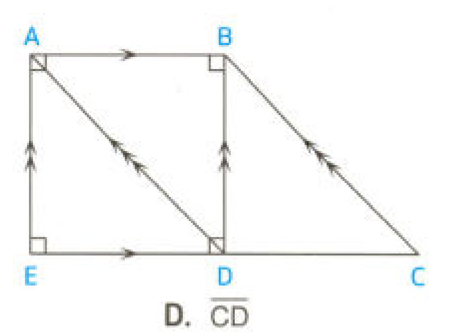
a. $\overline{AB}$ and .... are parallel.

b. $\overline{BE}$ is perpendicular to ....

c. $\overline{AD}$ is parallel to ....



d. $\overline{EB}$ and $\overline{AD}$ intersect at point ....



13. Choose the correct answer.

a. $\overline{AE}$ is perpendicular to ______

A. $\overline{BD}$ B. $\overline{BC}$

C. $\overline{AB}$ D. $\overline{AD}$

b. $\overline{AD}$ is parallel to ______

A. $\overline{EC}$ B. $\overline{BC}$ C. $\overline{AB}$ D. $\overline{CD}$

c. $\overline{BD}$ is perpendicular to ______

A. $\overline{BC}$ B. $\overline{AE}$ C. $\overline{AD}$ D. $\overline{EC}$

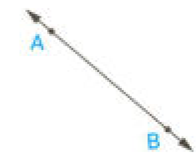
d. $\overline{AB}$ is parallel to ______

A. $\overline{AD}$ B. $\overline{CD}$ C. $\overline{BC}$ D. $\overline{AE}$

e. $\overrightarrow{ED}$ intersects $\overline{BC}$ at point ______

A. C B. D C. A D. B

14. Draw $\overleftrightarrow{LM}$ is parallel to $\overleftrightarrow{AB}$. [Luxor 23]



15. Draw $\overleftrightarrow{PQ}$ is perpendicular to $\overleftrightarrow{GH}$.



16. Draw $\overleftrightarrow{CD}$ is intersecting $\overleftrightarrow{JK}$.



17. Draw $\overleftrightarrow{AB}$ is parallel to $\overleftrightarrow{CD}$.

18. Draw $\overleftrightarrow{WX}$ is perpendicular to $\overleftrightarrow{YZ}$.

19. Draw line $\overleftrightarrow{XY}$ is parallel to line segment $\overline{AB}$. [El-Beheira 23]

20. **Writing About Math** Decide whether each statement is true or false. Explain your reasoning.

a. All intersecting lines are perpendicular.

b. Two lines that never intersect must be parallel.

c. All perpendicular lines are intersecting lines.

Multiple Choice Questions



Choose the correct answer.

1. The opposite figure is named as ______ [Alex. 23, Giza 23]



A. $\overrightarrow{AB}$ B. $\overrightarrow{BA}$
C. $\overline{AB}$ D. $\overleftrightarrow{BA}$

2. The name of ⟶ is ______ [Cairo 23]

A. a line. B. an angle.
C. a ray. D. a straight.

3. A/An ______ is a part of a line and has two endpoints. ______ [El-Beheira 23]

A. A point B. A line segment
C. An angle D. A straight line

4. The shape that shows a ray is ______ [Souhag 23]

A.

B.



C.

D.

5. The opposite lines are ______ [El-Monofia 23]



A. perpendicular. B. intersecting.
C. parallel. D. obtuse.

6. The opposite two lines are ______ [El-Beheira 23]



A. perpendicular.
B. parallel.
C. intersecting and not perpendicular.
D. not intersecting.

7. Which of the following figures shows two parallel lines ? [Port Said 23]

A.



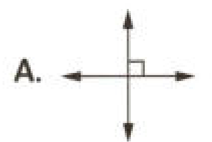
B.

C.

D.

8. Which of the following figures shows two perpendicular lines ? [El-Menia 23]

A.

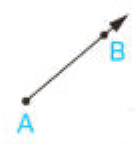


B.

C.

D.

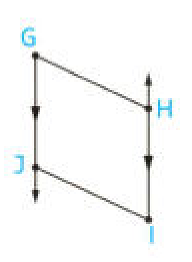
9. The opposite figure is named as ______ [El-Menia 23, Giza 23]



A. $\overrightarrow{AB}$ B. $\overline{AB}$
C. $\overleftrightarrow{AB}$ D. $\overleftrightarrow{BA}$

10. In the opposite figure :

The pair of parallel line segments are ______



A. $\overline{GH}$ and $\overrightarrow{GJ}$
B. $\overline{GJ}$ and $\overline{IH}$
C. $\overrightarrow{IH}$ and $\overline{HG}$
D. $\overline{IJ}$ and $\overrightarrow{GJ}$

Lessons 3 & 4

▸ Symmetry
▸ Real-World Geometry





Learn How can you describe and create symmetric figures ?

An artist designed the trademark at the right for a sporting goods company.
Many trademarks are symmetric figures.
This means they can be folded into two congruent parts that fit on top of each other.
The fold line is a line of symmetry.

Line of symmetry



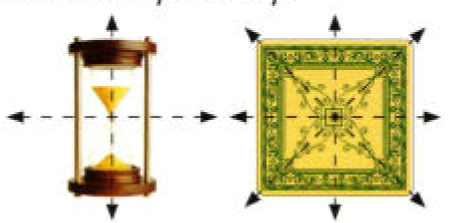
Work Together

1. Fold a sheet of paper in half.
2. Draw half of a face on the paper, using the fold as the line of symmetry.
3. With the paper folded, cut holes for the eyes, nose, and mouth. Cut out the shape of the face.
4. Unfold the paper. Color your mask the same on each side of the fold.



Notice

- These figures appear to have a line of symmetry.
- Some figures appear to have more than one line of symmetry.



Notes for parents :

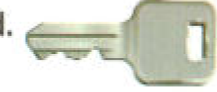
- Ask your child : What is the meaning of symmertric figures? Ask him/her to find some symmetric figures at home.



Example 1

Does each figure appear to have a line of symmetry ? Write yes or no.



a.  b.  c.  d. 

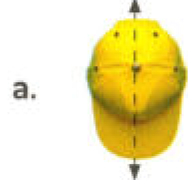
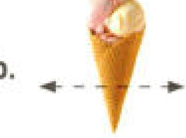
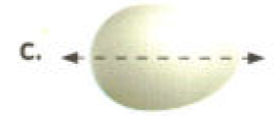
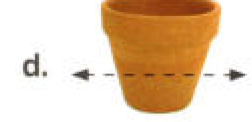
Solution



a. No b. Yes c. Yes d. No

Example 2

Does each line appear to be a line of symmetry ? Write yes or no.

a.  b.   c.  d. 

Solution

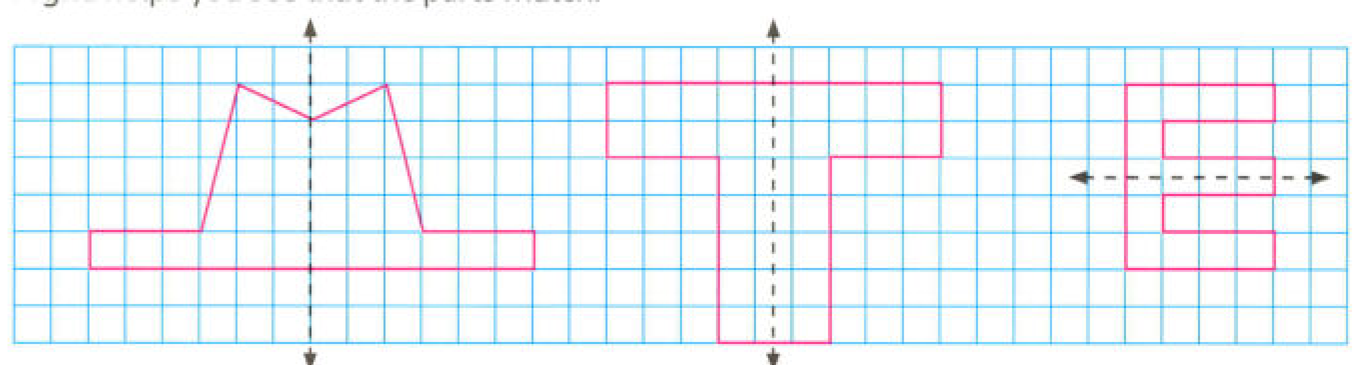


a. Yes b. No c. Yes d. No

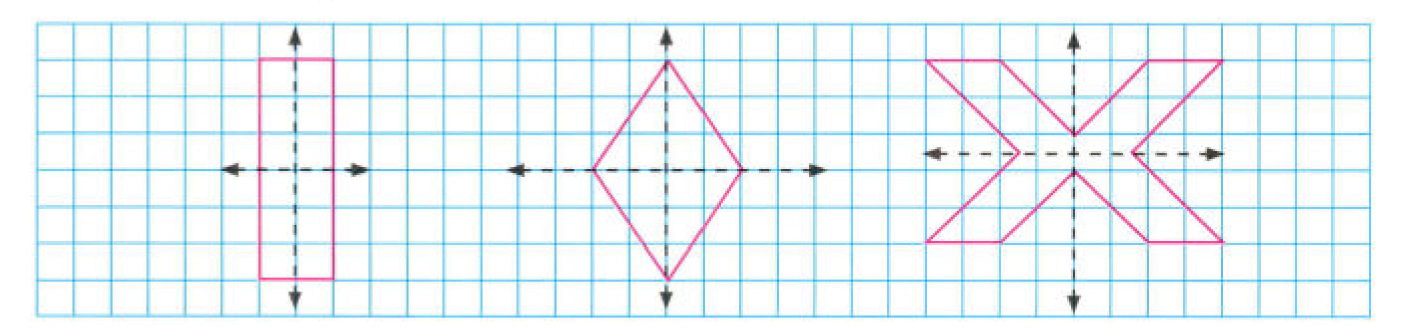
Another way to explore symmetry

Each shape below has a line of symmetry. It divides the shape into two equal parts.

A grid helps you see that the parts match.



Shapes can have more than one line of symmetry. Each shape below has two lines of symmetry. All of the parts match.

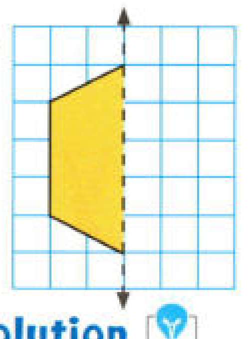
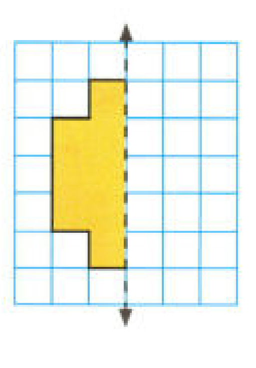
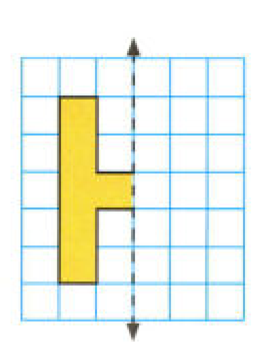
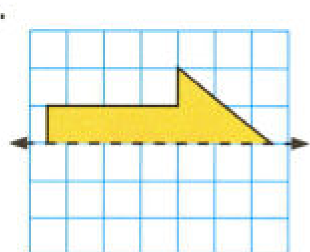


Notes for parents :

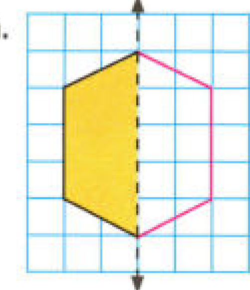
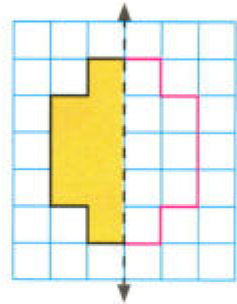
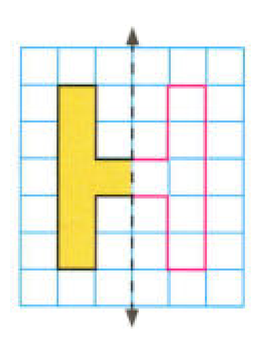
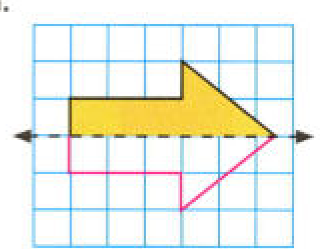
• Ask your child where is the line of symmetry on his/her mask ?

Example 3

Use the drawn line of symmetry to draw the other half.

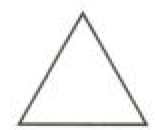
a. 
b. 
c. 
d. 

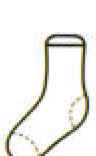
Solution 

a. 
b. 
c. 
d. 

Check your understanding

1. Does each figure appear to have a line of symmetry ? Write yes or no.

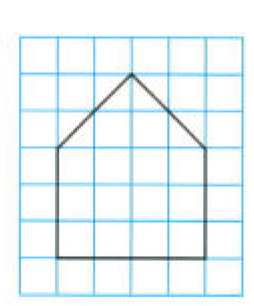
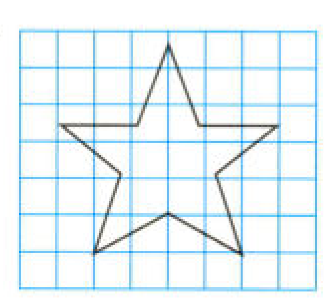
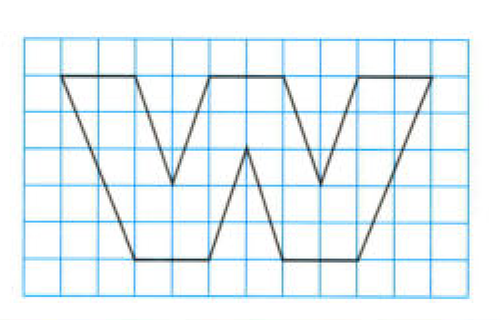
a. 
____

b. 
____

c. 
____

d. 
____

2. Draw a line of symmetry for each.

a. 
b. 
c. 

• Ask your child how many lines of symmetry can he/she draw for a circle.

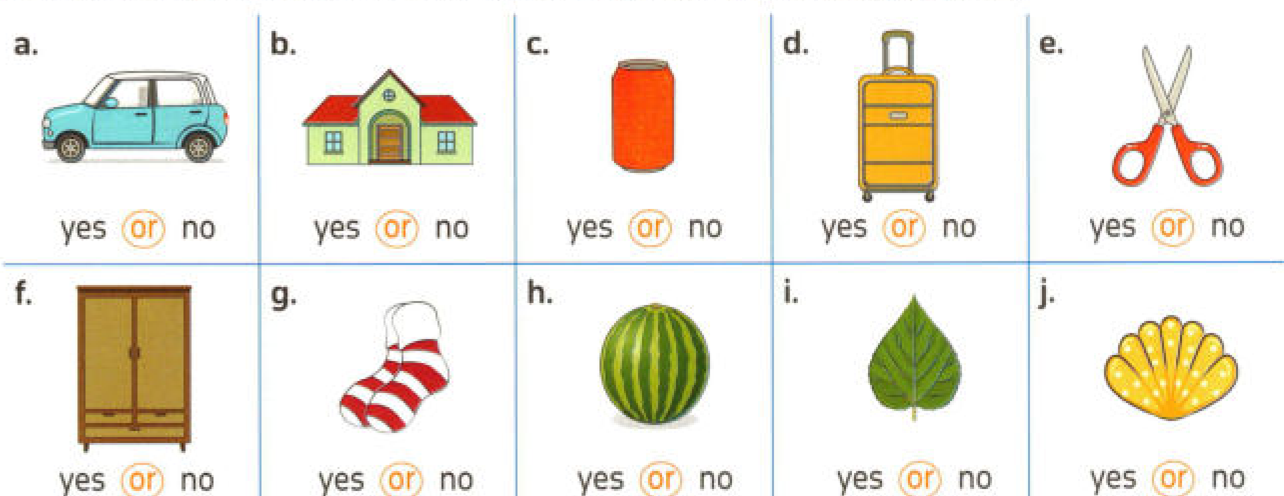
Exercise 18

on lessons 3&4

- Symmetry
- Real-World Geometry

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Does each figure appear to have a line of symmetry. Choose yes or no.



2. Determine if the drawn line is a line drawn is a line of symmetry. Circle the shapes that show a line of symmetry.

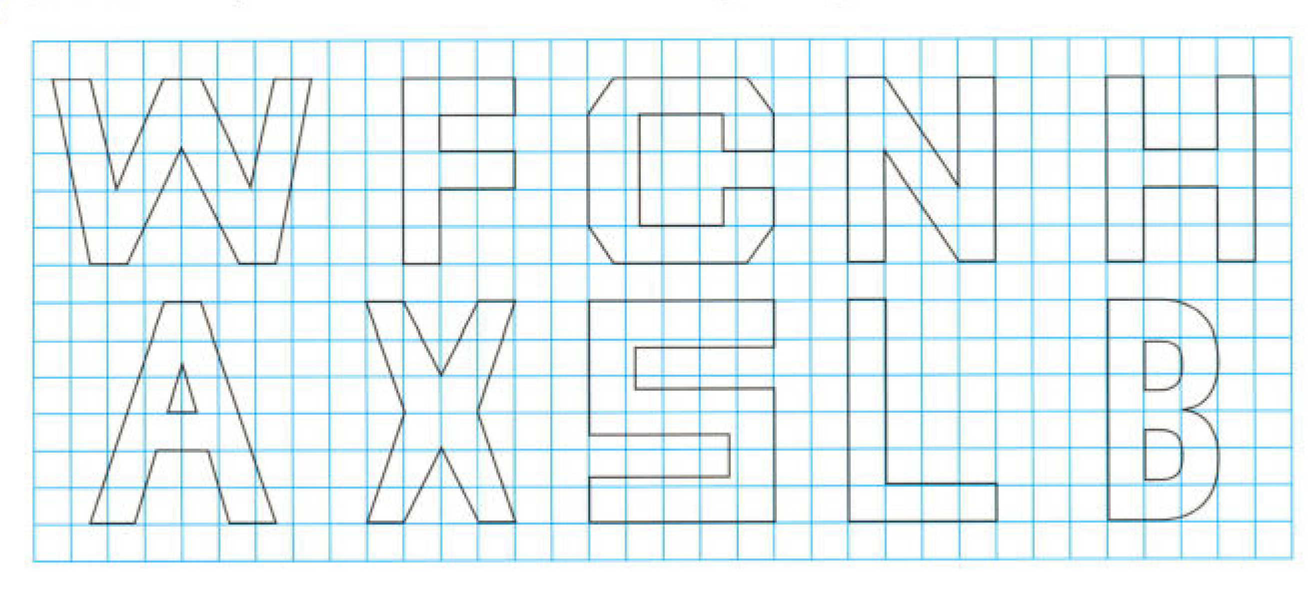
a. b. c. d.

e. f. g. h.

i. j. k. l.

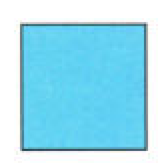
m. n. o. p.

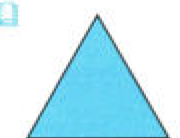
3. Color each shape that has one or more lines of symmetry.

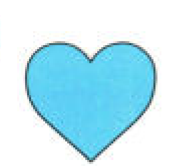


4. Look at each shape. Draw one line of symmetry for each one.

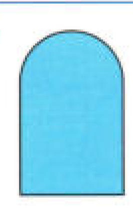
[**Hint** : Some figures has more than one line of symmetry].

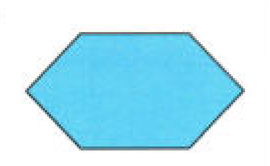
a. 

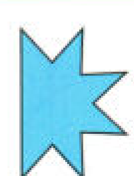
b. 

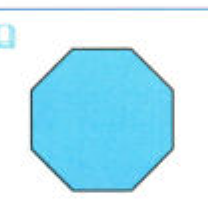
c. 

d. 

e. 

f. 

g. 

h. 

5. **Symbol Symmetry.** Look at each symbol. Some of the symbols are symmetrical, but some are not. Draw lines of symmetry in the symmetrical symbols. Some symbols may have more than one line of symmetry.

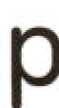
a. 

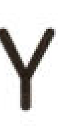
b. 

c. 

d. 

e. z

f. 

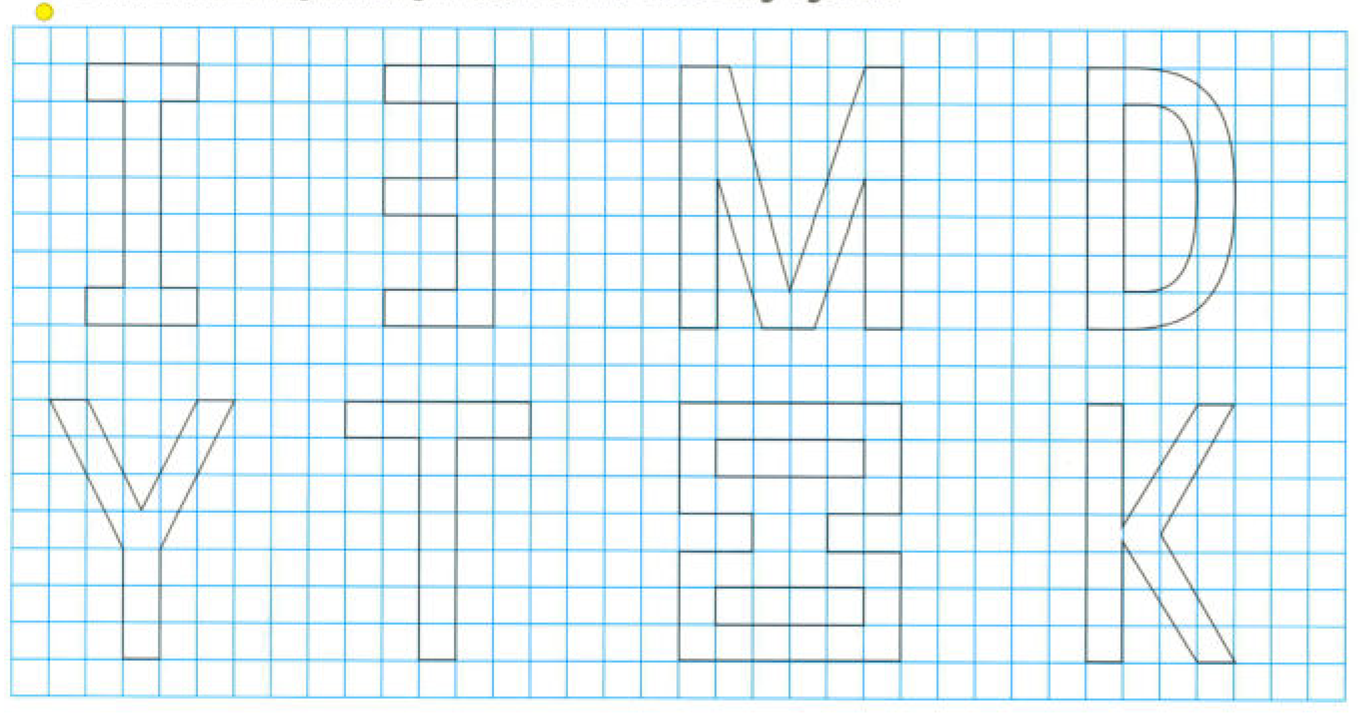
g. 

h. 

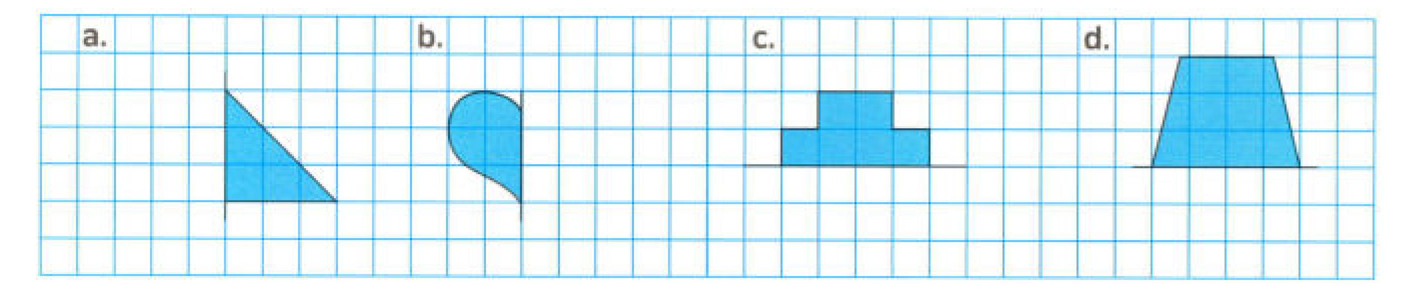
i. !

j. 

6. Draw a line of symmetry in each of the following figures.



7. **Creating Symmetrical Shapes.** In each picture, you can see half of the shape and the line of symmetry. Use that information to draw the rest of each shape.



8. **Writing About Math.** How do you determine if a shape or symbol has a line of symmetry ? Explain your answer using words and pictures.

____

____

9. **Writing About Math.** Where do you see geometry in the world around you ? Where do you see shapes, lines, and symmetry ? How does geometry make the world around you more beautiful and interesting ?

____

____

10. Geometry Park. **Look at the following picture of the park and then follow the directions.**

a. Color two perpendicular lines blue.

b. What shape are the restrooms ?

c. Color two parallel lines green.

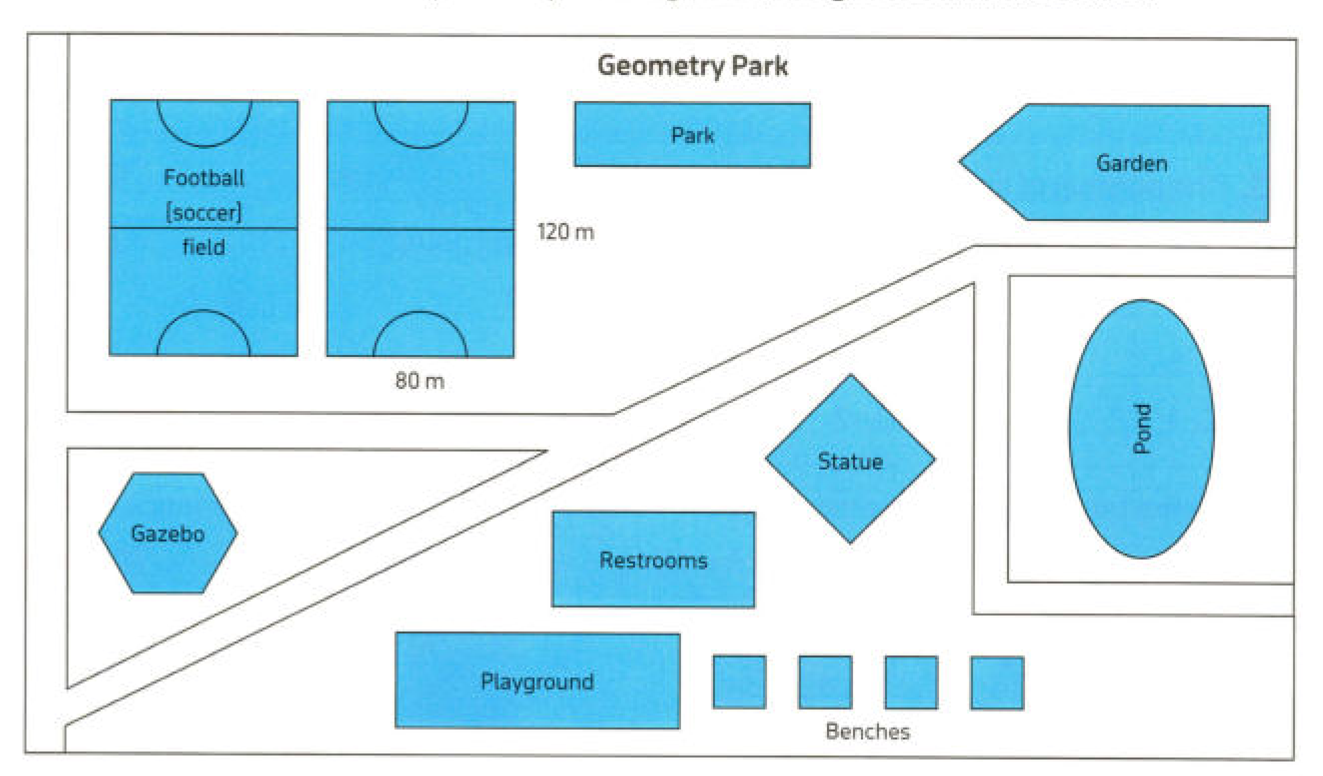
d. How many quadrilaterals are in the park ?

e. Color two intersecting lines red.

f. Circle and label three different two-dimensional shapes.

g. Find the perimeter and area of one of the football pitches.

h. Draw at least one line of symmetry on the garden, the gazebo and the statue.



11. Design a Park. **Use a graph paper. Follow the guidelines to design, label and color your own park. Your park must include the following.**

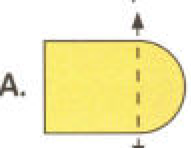
- At least two pathways that intersect.
- At least two pathways that are parallel.
- A play space for children in the shape of a quadrilateral.
- A garden with a perimeter of 40 meters.
- A monument or statue in the shape of a pentagon.
- A water feature like a lake, a fountain or a pool that has an area of 32 square meters.
- Symmetrical restrooms with more than four sides.

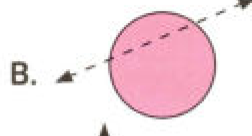


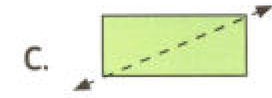
Multiple Choice Questions

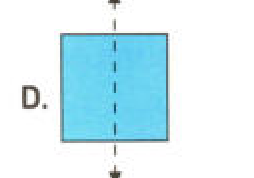
Choose the correct answer.

1. Which of the following shows a line of symmetry? [Kafr El-Sheikh 23]

A. 

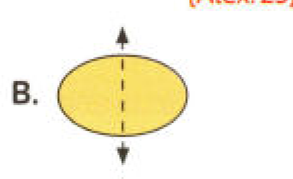
B. 

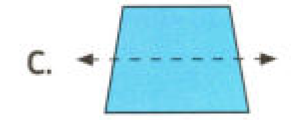
C. 

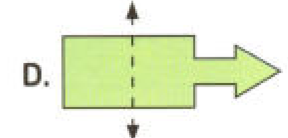
D. 

2. Which of the following figures shows a line of symmetry? [Alex. 23]

A.

B. 

C. 

D. 

3. The number of lines of symmetry that can be drawn in the opposite figure is ______  [El-Monofia 23]

A. 4 B. 3

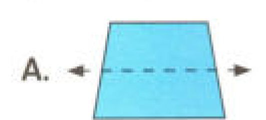
C. 1 D. 2

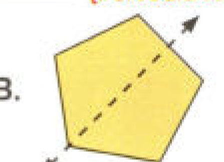
4. [parallelogram] has ______ line[s] of symmetry. [El-Menia 23]

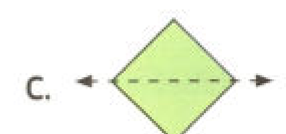
A. 2 B. 0

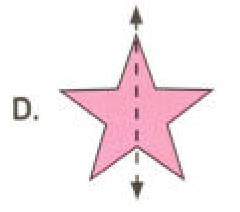
C. 4 D. 1

5. All the following figures show a line of symmetry except ______ [Port Said 23]

A. 

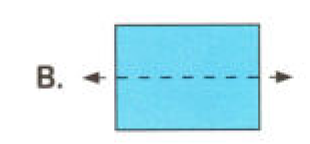
B. 

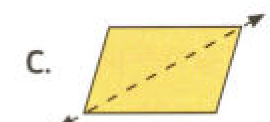
C. 

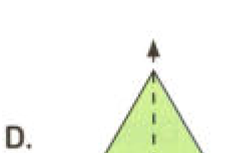
D. 

6. All the following figures show a line of symmetry except ______ [El-Monofia 23]

A.

B. 

C. 

D. 

7. All the following figures has a line of symmetry except ______ has more than one line of symmetry.

A. 

B. 

C. 

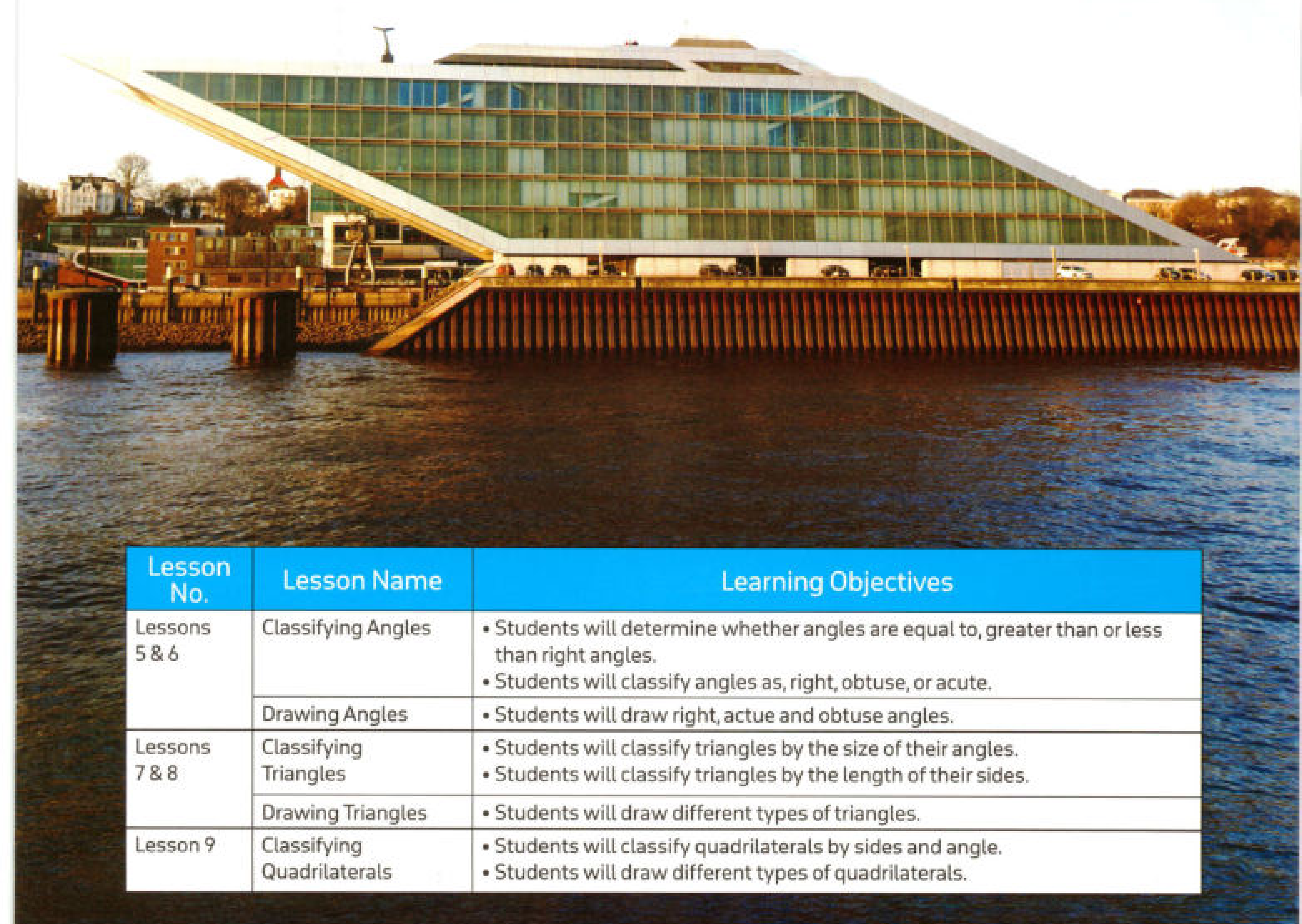
D. 

Concept 2

Classifying Shapes

Did you know ?!

This modern office building in Hamburg, Germany is in the shape of parallelogram !



Lesson No.	Lesson Name	Learning Objectives
Lessons 5 & 6	Classifying Angles	• Students will determine whether angles are equal to, greater than or less than right angles. • Students will classify angles as, right, obtuse, or acute.
	Drawing Angles	• Students will draw right, actue and obtuse angles.
Lessons 7 & 8	Classifying Triangles	• Students will classify triangles by the size of their angles. • Students will classify triangles by the length of their sides.
	Drawing Triangles	• Students will draw different types of triangles.
Lesson 9	Classifying Quadrilaterals	• Students will classify quadrilaterals by sides and angle. • Students will draw different types of quadrilaterals.

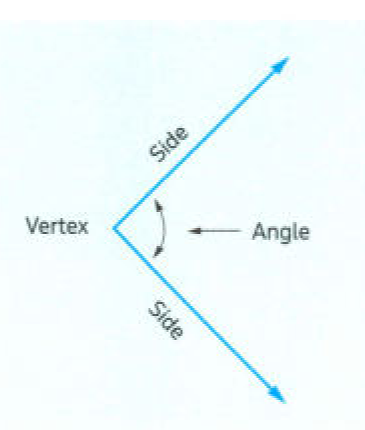
Lessons 5 & 6

▸ Classifying Angles
▸ Drawing Angles

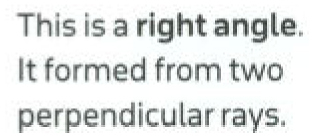
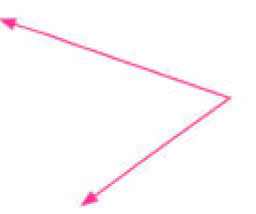
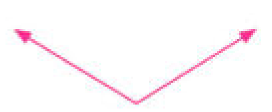


Learn 1 Kinds of angles

- An angle is formed by two rays that have the same endpoint.
- The common endpoint is called the vertex (plural : vertices).
- The rays are the sides of the angle.



Angles can be different sizes.

Right angle	Acute angle	Obtuse angle
		
 a small square is used to identify a right angle		
This is a **right angle**. It formed from two perpendicular rays.	This angle is **less** than a right angle.	This angle is **greater** than a right angle.

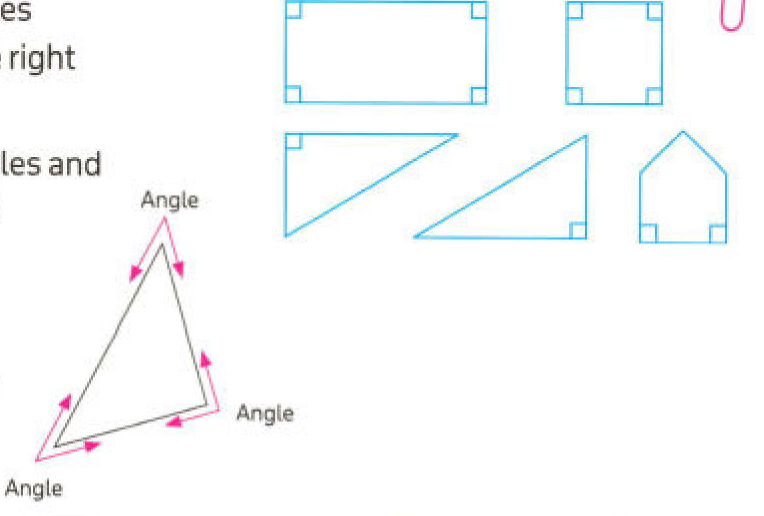
Notes for parents :

- Draw an angle on a sheet of paper. Let your child point to its vertex and its sides.



Notes

- You know that squares and rectangles are types of quadrilaterals that have right angles.
- Right angles can also occur in triangles and polygons with more than four sides.
- This is a polygon. Each corner of a polygon forms an angle.
- In any polygon, the number of sides equals the number of angles.



Example 1

Circle all the right angles you see.

a. b. c. d. e.





Solution



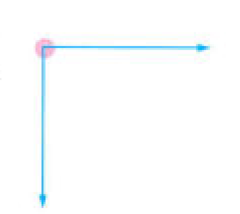




b.



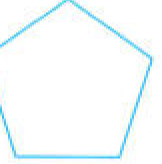
d.



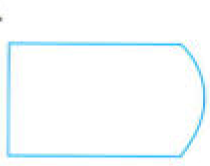
Example 2

Circle the shapes that contain right angle.

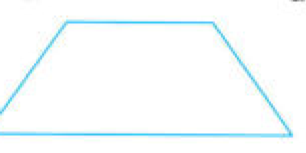
a.



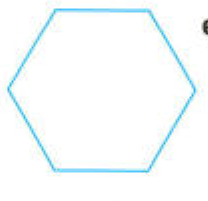
b.



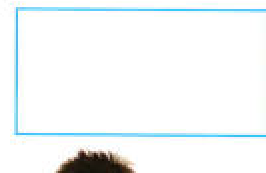
c.



d.



e.

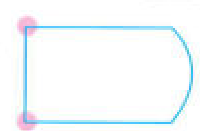


Solution

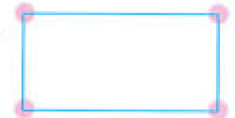




b.



e.

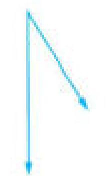
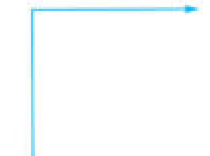
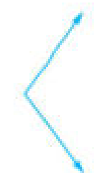
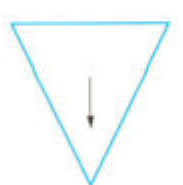
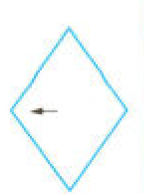




• Let your child identify right angles in some polygons.

Example 3

Identify the name of each angle "right angle - acute angle - obtuse angle" for each of the following.

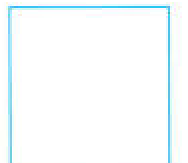
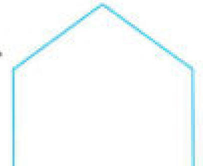
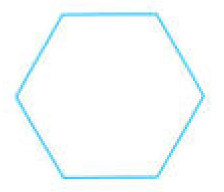
a. 
b. 
c. 
d. 
e. 

Solution 

a. acute angle
b. right angle
c. obtuse angle
d. acute angle
e. obtuse angle

Example 4

Write the number of right angles in each polygon.

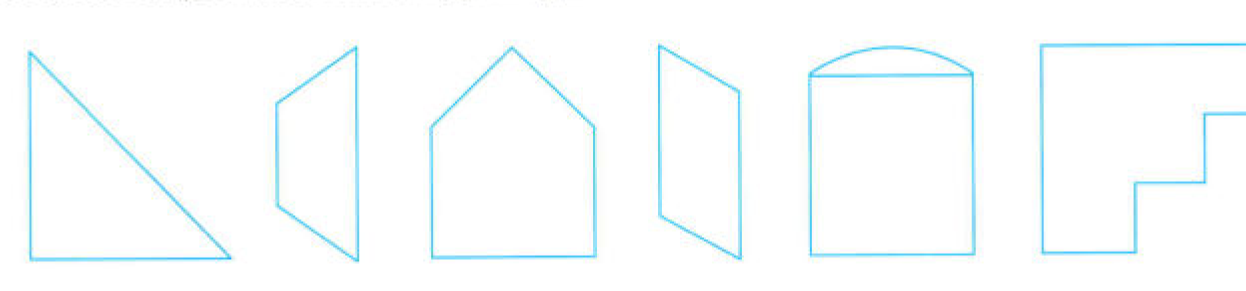
a. 
b. 
c. 

Solution 

a. 4
b. 2
c. 0

 **Check** your understanding

Color the shapes that contain right angle.



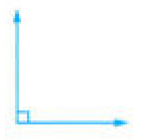
Notes for parents :

- Ask your child where he/she can find right angles, acute angles and obtuse angles around us.
- Ask him/her to give you examples for each.

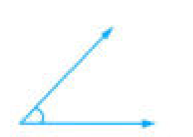
Learn ② Drawing angles

Remember the different kinds of angles.

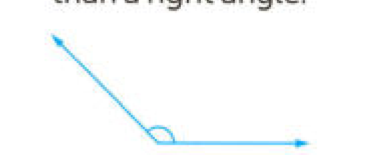
A right angle forms a square corner.



An acute angle is less than a right angle.



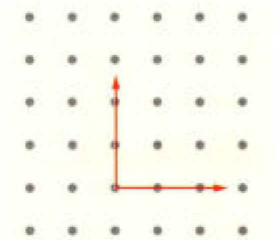
An obtuse angle is greater than a right angle.



You can use dot paper and a ruler to draw an angle

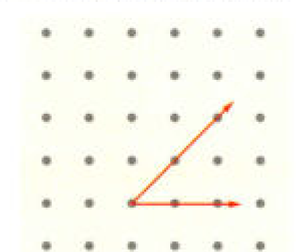
First Right angle

Use a ruler to draw 2 perpendicular rays that meet at the endpoint.



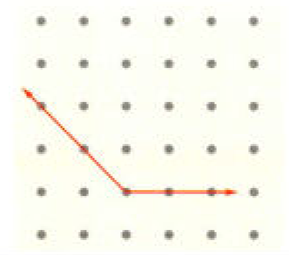
Second Acute angle

Use a ruler to draw 2 rays that meet at the endpoint less than a right angle.



Third Obtuse angle

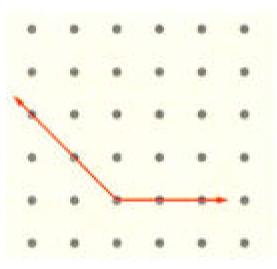
Use a ruler to draw 2 rays that meet at the endpoint greater than a right angle.



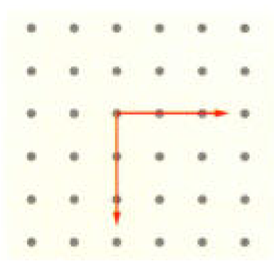
Example 5

Draw and label an acute angle, a right angle and an obtuse angle. (Using dot paper)

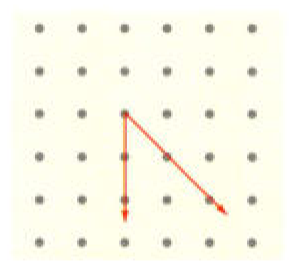
Solution 



an obtuse angle



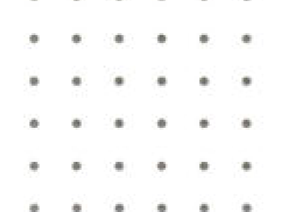
a right angle



an acute angle

Check your understanding

Draw and label a right angle, an acute angle and an obtuse angle.



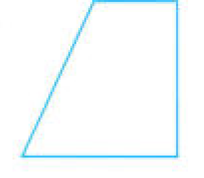
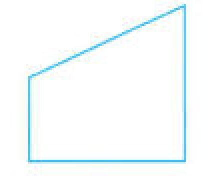
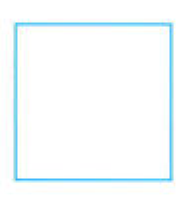
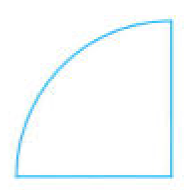
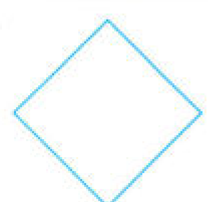
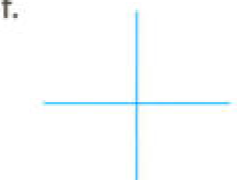
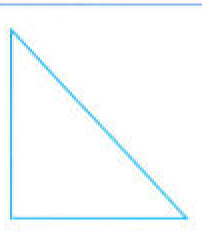
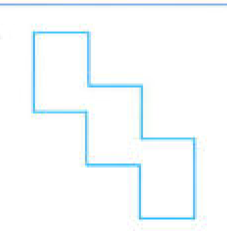
• Help your child to draw some angles in a dot paper and write its name.

Exercise 19 on lessons 5&6

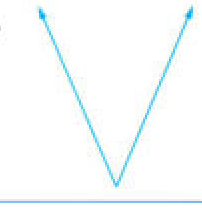
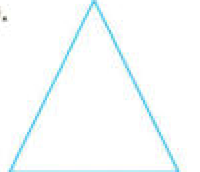
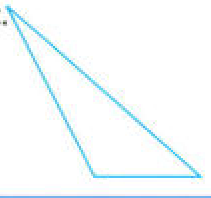
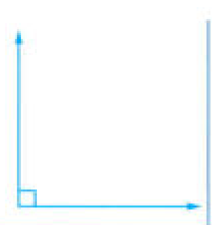
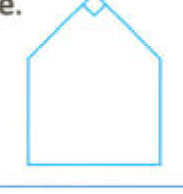
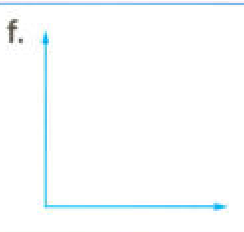
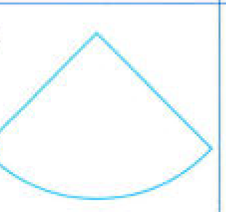
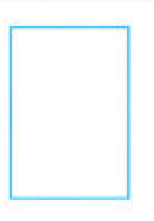
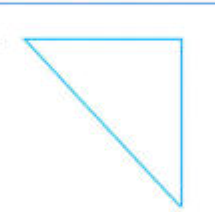
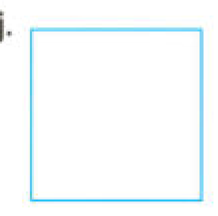
▸ Classifying Angles
▸ Drawing Angles

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

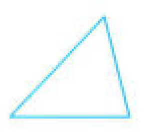
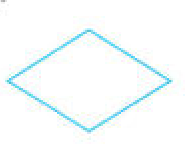
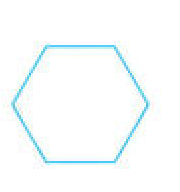
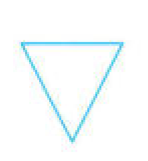
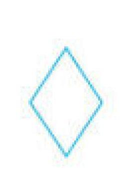
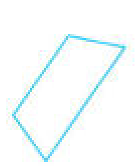
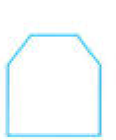
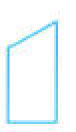
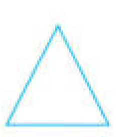
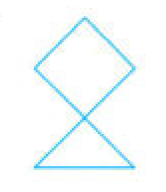
1. Circle all the right angles in the following figures.

a. 
b. 
c. 
d. 
e. 
f. 
g. 
h. 

2. Circle the acute angles "less than right angle" in each of the following figures.

a. 
b. 
c. 
d. 
e. 
f. 
g. 
h. 
i. 
j. 

3. Circle the geometric figure that contains an acute angle.

a. 
b. 
c. 
d. 
e. 
f. 
g. 
h. 
i. 
j. 

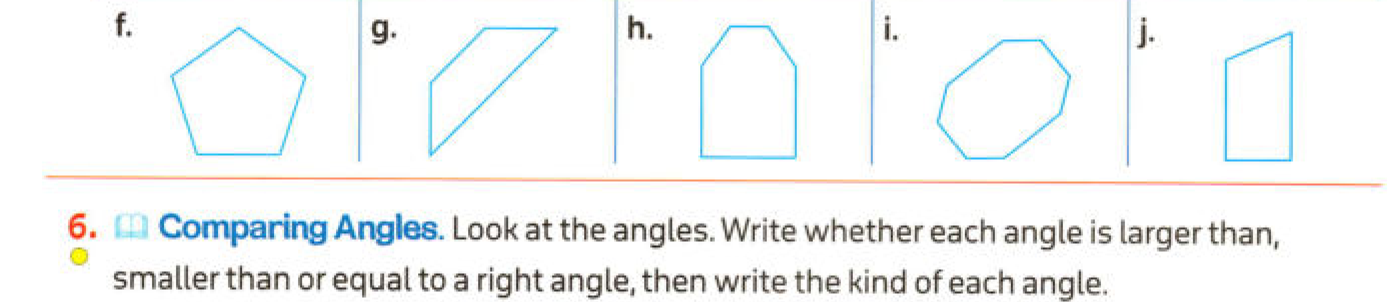
4. Circle the geometric figure that contains an obtuse angle.

a. b. c. d. e.

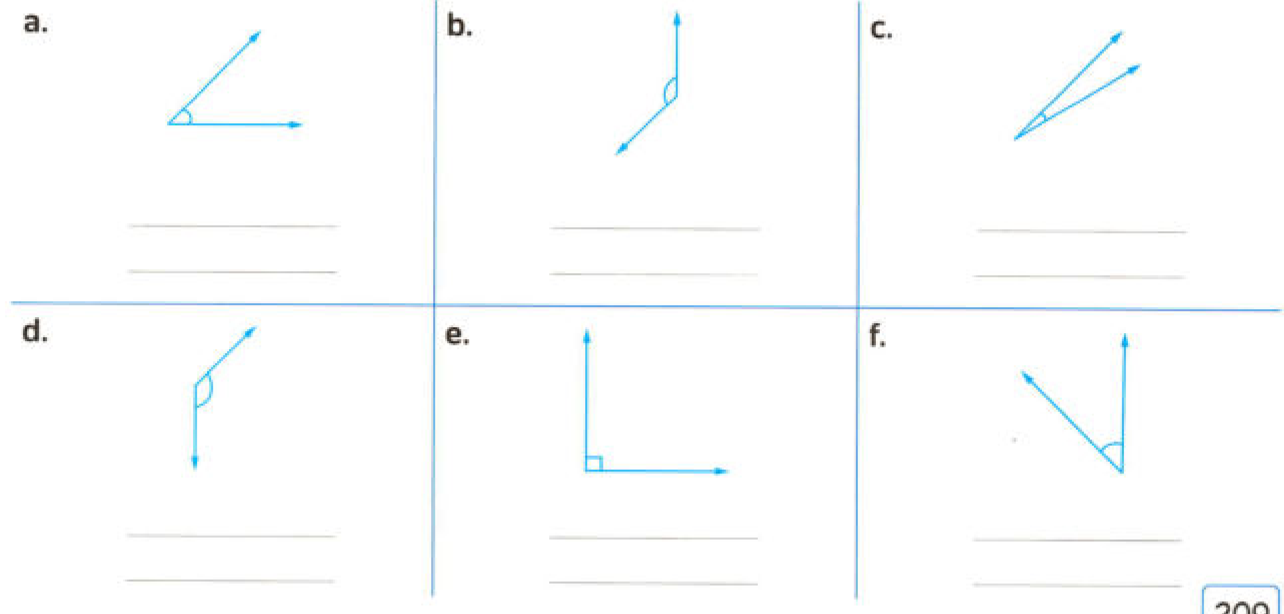
f. g. h. i. j.

5. **Types of Angles.** Color acute angles red, right angles yellow, and obtuse angles blue. Use your index card to prove what type of angle is shown. An example is shown.

Example :



6. **Comparing Angles.** Look at the angles. Write whether each angle is larger than, smaller than or equal to a right angle, then write the kind of each angle.



7. Complete.

a. The opposite angle represents ________ angle. [Giza 23]

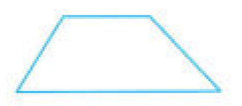
b. The opposite angle is ________ angle. [Cairo 23]

c. The opposite angle is ________ angle. [El-Menia 23]

d. An ________ angle less than a right angle. [Luxor 23]

e. An ________ angle more than a right angle.

f. How many acute angles are there in the figure ? [Kafr El-Sheikh 23]



8. Drawing Angles Use a ruler to connect the dots to draw and label the following in the grid.



a. 3 acute angles.

b. 3 right angles.

c. 3 obtuse angles.

d. A right angle and an obtuse angle that share an endpoint.

e. Two acute angles that share an endpoint.

acute

9. Combine pattern blocks to create the shapes described on the following dot grid :

a. Draw a right angle and an acute angle that share an endpoint. Label the angles.

b. Draw two obtuse angles that share an endpoint. Label the angles. (Hints : You can use lines. Angles can face any direction.)

c. Draw a triangle with a right angle.

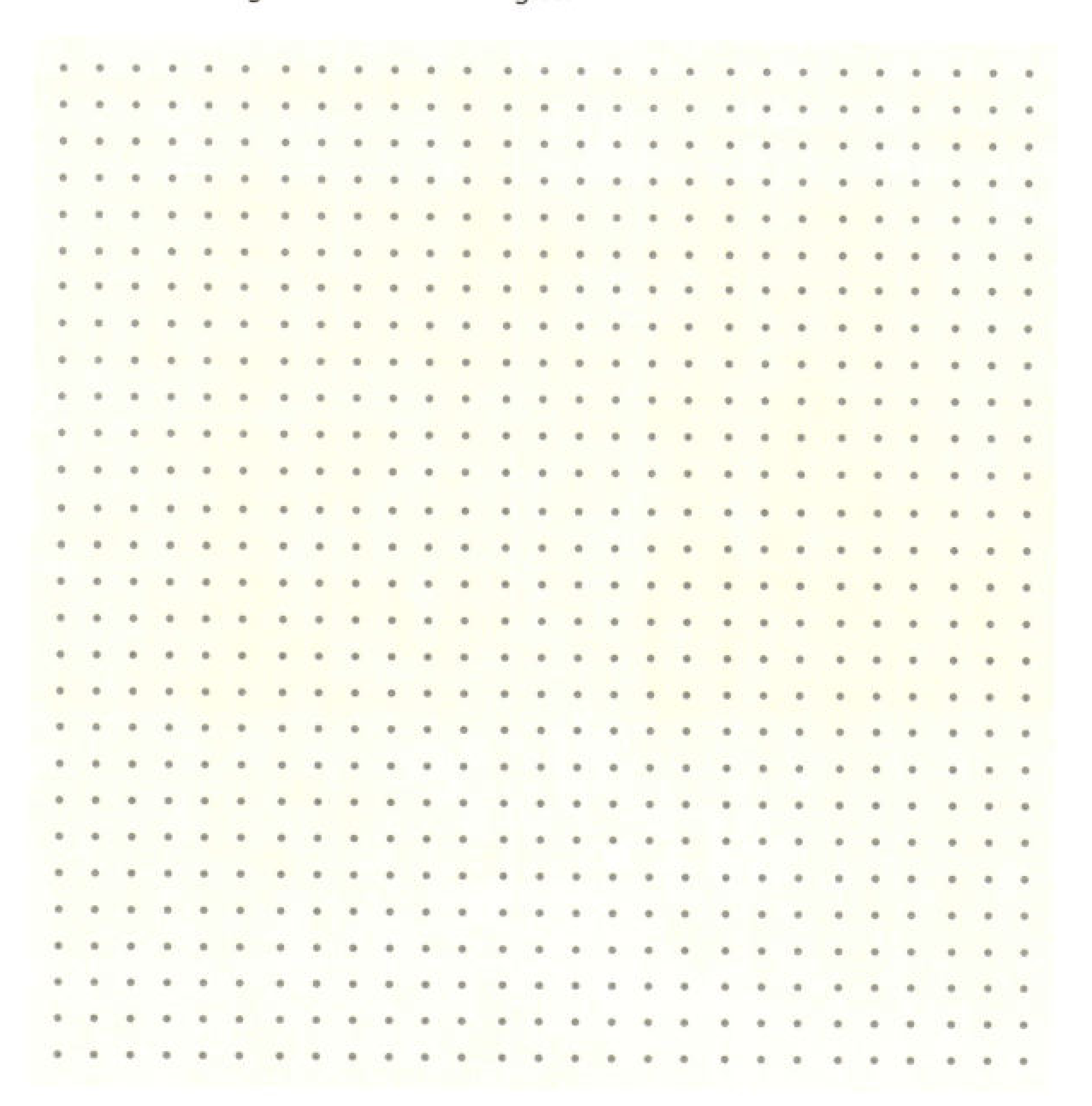
d. Draw a triangle with three acute angles.

e. Draw a quadrilateral with at least two right angles. Label the angles.

f. Draw a quadrilateral with 4 right angles and name it.

g. Draw a quadrilateral with two acute angles and two obtuse angles.

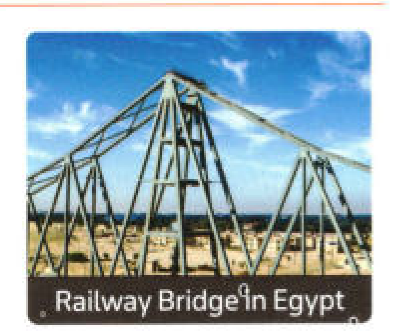
h. Draw a hexagon with all obtuse angles.



10. **Writing About Math.** Read the statement. Rewrite Jana's instructions so they are more clear for Manal.

Jana wanted Manal to draw an **obtuse angle**. She told her that she should draw two rays and make sure they are wide.

11. **Another look.** Why do you think there are so many right angles in the world around us? Use words and pictures to support your thinking.



Railway Bridge in Egypt

Challenge

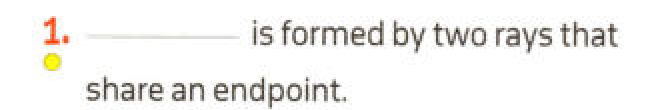
12. Create your own shape using pattern blocks. Ask your shoulder partner to identify the different angles in your shape.



Multiple Choice Questions

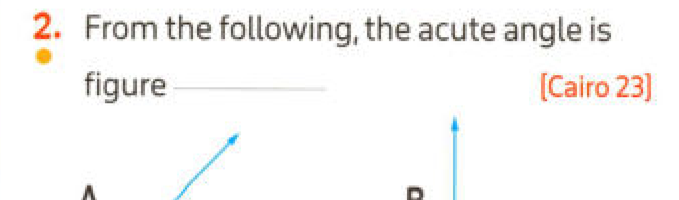
Choose the correct answer.

1. ______ is formed by two rays that share an endpoint.



A. A point B. A line segment
C. An angle D. A ray

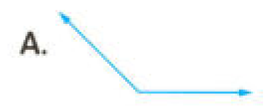
2. From the following, the acute angle is figure ______ [Cairo 23]



A. B. C. D.

3. Which figure shows a right angle? [Giza 23]





A. B. C. D.

4. The figure that shows an obtuse angle is ______

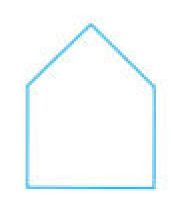
A. B. C. D.

5. The opposite figure is represents ______ angle. [Alex. 23]



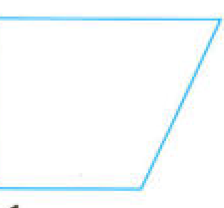
A. an acute B. an obtuse
C. a right D. a straight

6. The number of the right angles in the opposite figure is ______



A. 1 B. 2
C. 3 D. 4

7. How many obtuse angles are there in the opposite figure?

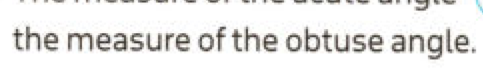


A. 0 B. 1
C. 2 D. 3

8. The measure of the acute angle ◯ the measure of the right angle. [El-Beheira 23]

A. > B. < C. =

9. The measure of the acute angle ◯ the measure of the obtuse angle. [Port Said 23]





A. < B. >
C. = B. otherwise

10. Which angle that is smaller than the right angle?

A. an acute angle. B. a right angle.
C. an obtuse angle. D. a straight line.



Lessons

7 & 8

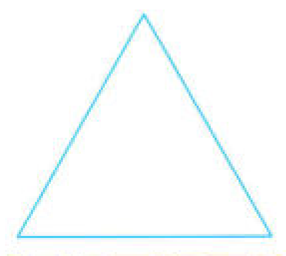
▸ Classifying Triangles
▸ Drawing Triangles



Learn How do you classify triangles ?

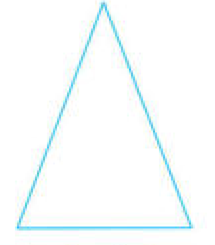
Classifying triangles makes it eaier to describe them.

Triangles can be classified by the lengths of their sides.



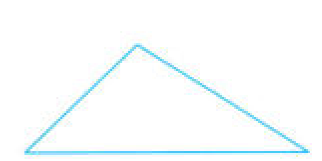
Equilateral triangle

All sides are the same length.



Isosceles triangle

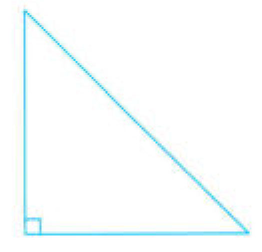
At least two sides are the same length.



Scalene triangle

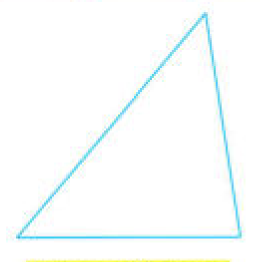
No sides are the same length.

You can also classify triangles by the sizes of their angles.



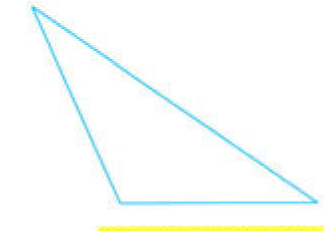
Right triangle

One angle is a right angle and the other two angles are acute.



Acute triangle

All three angles are acute angles.

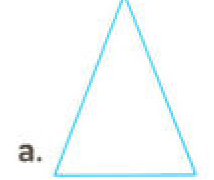


Obtuse triangle

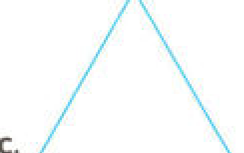
One angle is an obtuse angle and the other two angles are acute.

Example 1

Name each triangle. Write right, obtuse or acute.

a. 

b. 

c. 

d.

Solution 

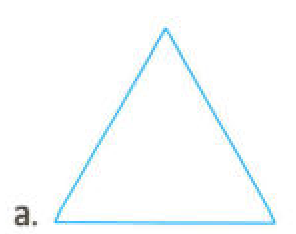
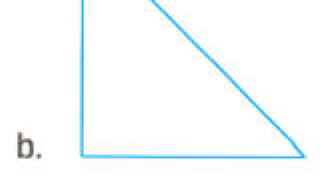
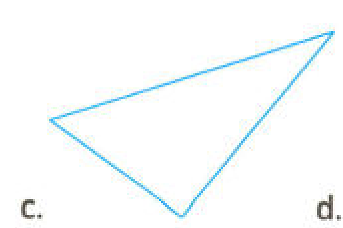
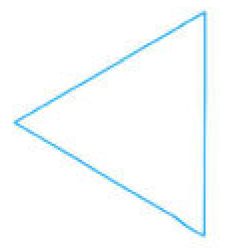
a. Acute b. Right c. Acute d. Obtuse

Notes for parents :

• Ask your child to give you examples for each kind of triangle at home.

Example 2

Name each triangle. Write equilateral, isosceles or scalene.

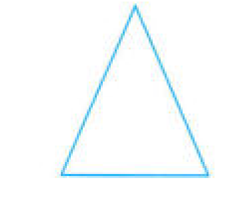
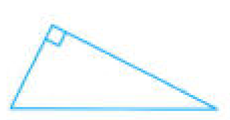
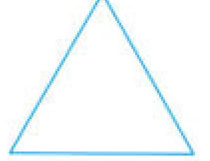
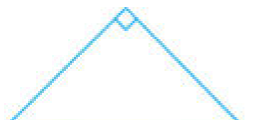
a. 
b. 
c. 
d. 

Solution 

a. Equilateral
b. Isosceles
c. Scalene
d. Equilateral

Example 3

Classify each triangle by its sides and then by its angles.

a. 
b. 
c. 
d. 
e. 



Solution 

Classification according to its sides :

a. Isosceles triangle
b. Scalene triangle
c. Equilateral triangle
d. Isosceles triangle
e. Isosceles triangle

Classification according to its angles :

a. Acute triangle
b. Right triangle
c. Acute triangle
d. Obtuse triangle
e. Right triangle

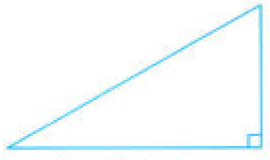
• Ask your child can a right triangle also can be an isosceles triangle ? Explain.

Example 4

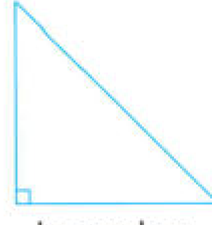
Draw right, acute and obtuse triangles. Write whether each is scalene, isosceles or equilateral.

Solution 

Right triangles



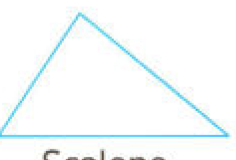
Scalene



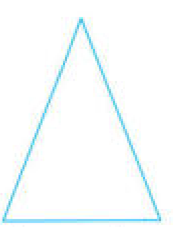
Isosceles



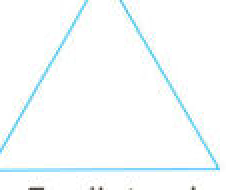
Acute triangles



Scalene



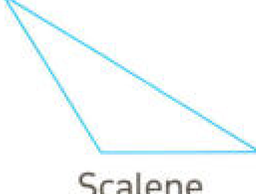
Isosceles



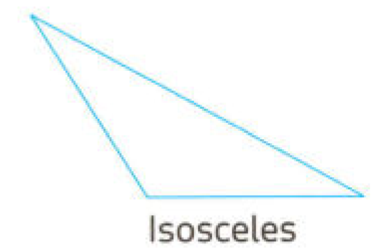
Equilateral

Obtuse triangles





Scalene



Isosceles

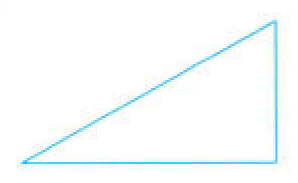
Math Hint

- *Equilateral triangles are always acute triangles.*
- *Any triangle has at least 2 acute angles.*

 **Check** your understanding

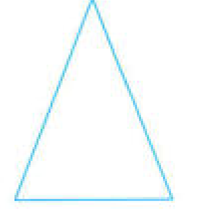
1. Classify each triangle as equilateral, isosceles or scalene.

a.



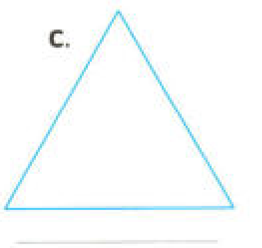
____

b.



____

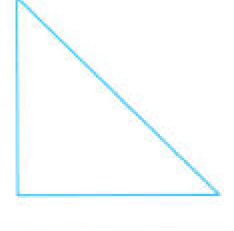
c.



____

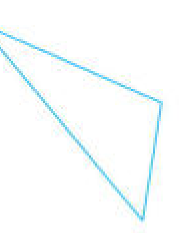
2. Classify each triangle as acute, right, or obtuse.

a.



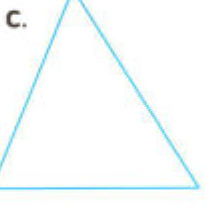
____

b.



____

c.



____

Notes for parents :

- Help your child to use his ruler in drawing triangles.

Exercise

20

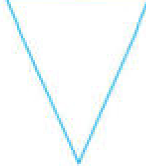
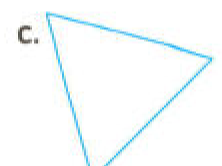
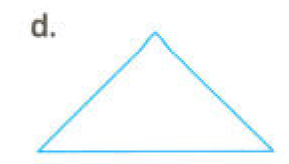
on lessons 7&8

▸ Classifying Triangles
▸ Drawing Triangles

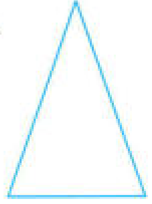
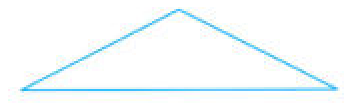
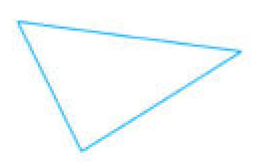
● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Circle the equilateral triangle.

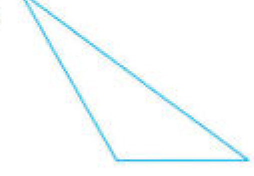
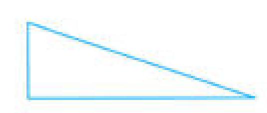
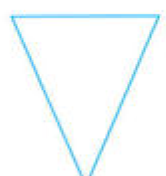
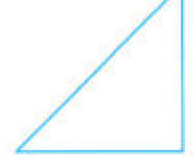


a.  b. c.  d. 

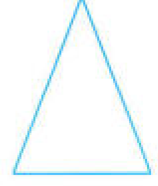
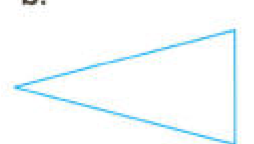
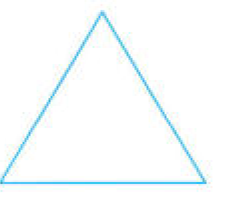
2. Circle the triangle which is not isosceles.

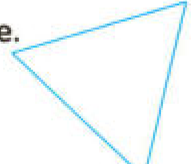
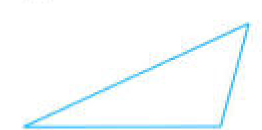
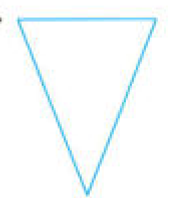
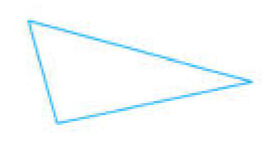
a.  b.  c. 

3. Circle the right triangles.

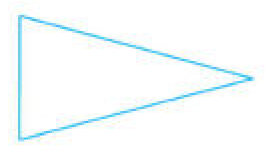
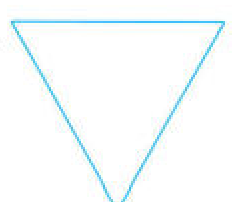
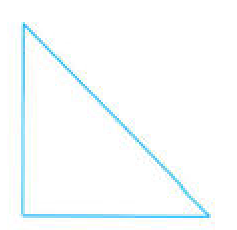
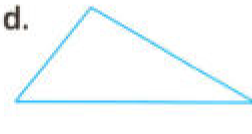
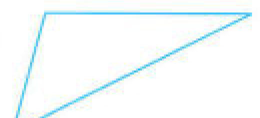
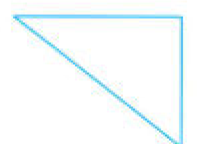
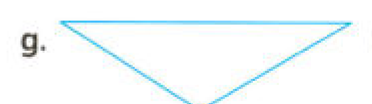
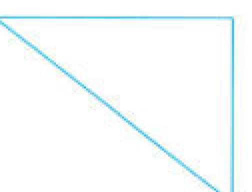
a.  b.  c.  d. 

4. Name each triangle. Write equilateral, isosceles or scalene.

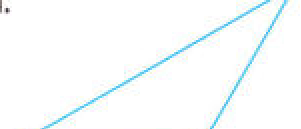
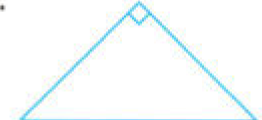
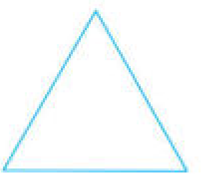
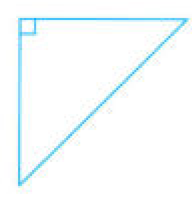
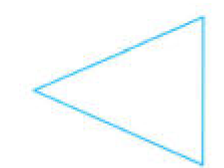
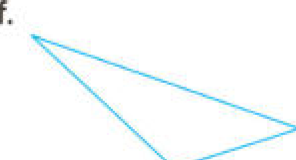
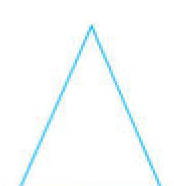
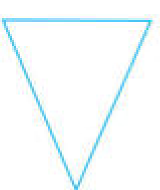
a.  b.  c.  d. 

e.  f.  g.  h. 

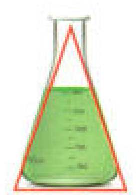
5. Name each triangle. write right, obtuse or acute.

a. 
b. 
c. 
d. 
e. 
f. 
g. 
h. 

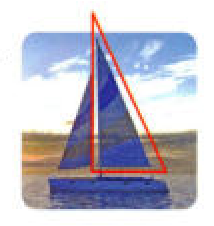
6. Classify each triangle by its sides and angles.

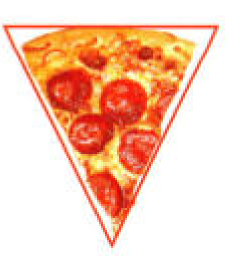
a. 
b. 
c. 
d. 
e. 
f. 
g. 
h. 

7. Classify each triangle as equilateral, iscosceles or scalene.

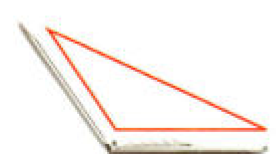
a. 
b. 
c. 
d. 
e. 
f. 

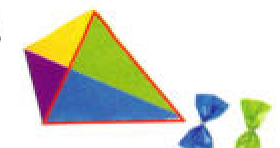
8. **Classify each triangle as acute, right or obtuse.**

a. 

b 

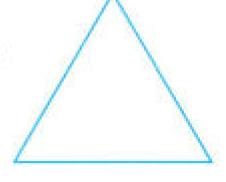
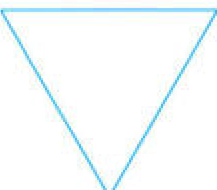
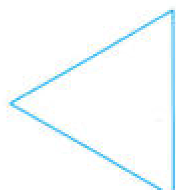
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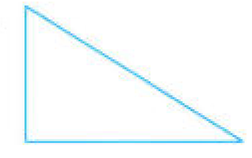
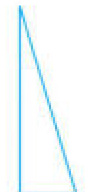
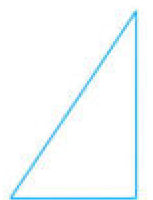
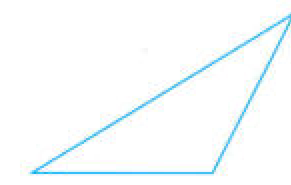
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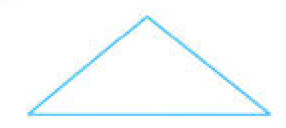
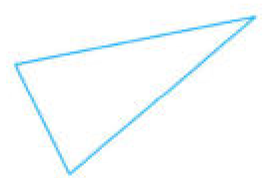
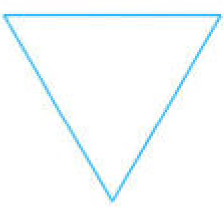
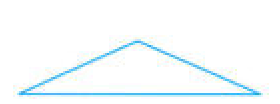
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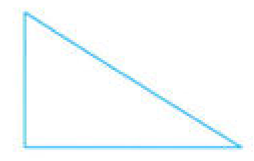
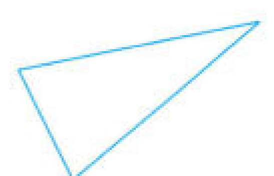
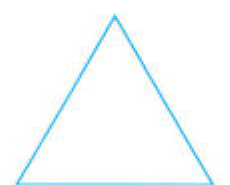
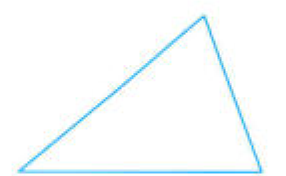
f. 

9. **Odd One Out.** Look carefully at the sides and angles in each triangle. Circle the triangle that does not belong in each group. Use mathematical vocabulary to explain your reasoning.

a.   

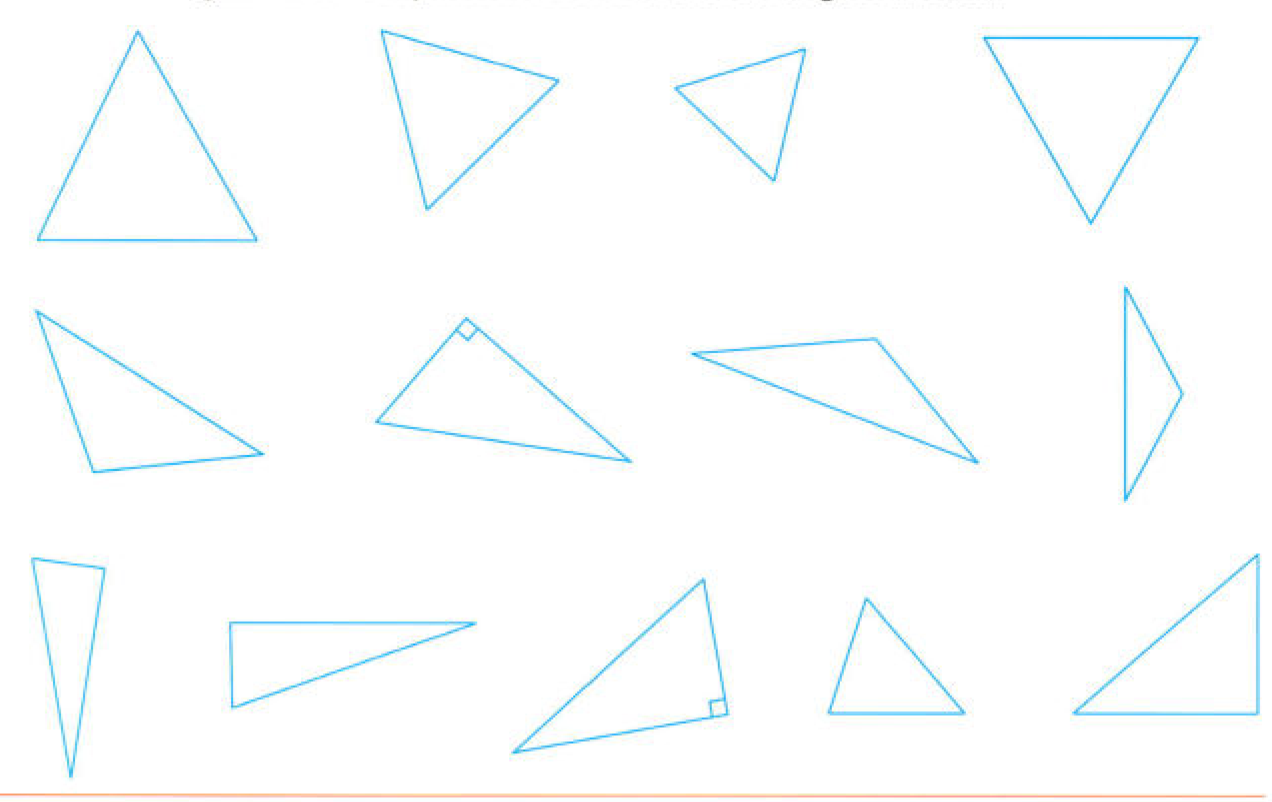
b.    

c.    

d.    

10. **Classifying triangles.** **follow the directions to classify, color and trace each group of triangles**

- Obtuse triangles have one obtuse angle. Color obtuse angles yellow.
- Right triangles have one right angle. Color right angles red.
- Acute triangles have three acute angles. Color acute angles green.
- Equilateral triangles have three sides. Trace equilateral triangles in orange.
- Isosceles triangles have two equal sides. Trace isosceles triangles in purple.
- Scalene triangles have no equal sides. Trace scalene triangles in black.



11. **Who am I ?**

a. I am a triangle with only two equal sides. [..........]

b. I am a triangle with only one angle greater than a right angle. [..........]

c. I am a triangle with three equal sides. [..........]

d. I am a triangle with three different sides. [..........]

e. I am a triangle with one right angle. [..........]

f. I am a triangle with all angles less than a right angle. [..........]

g. I am a triangle with two equal sides and all the angles are less than a right angle. [..........]

h. I am a triangle with no equal sides and one angle is greater than a right angle. [..........]

12. True or false.

a. Equilateral triangle has only two equal sides. [..........]

b. Acute triangle has only one acute angle. [..........]

c. Right triangle has two right angles. [..........]

d. Scalene triangle has no equal sides. [..........]

e. Obtuse triangle has one obtuse angle. [..........]

f. Isosceles triangle has three equal sides. [..........]

g. Equilateral triangles could be acute, right or obtuse. [..........]

h. Isosceles triangles could be acute, right or obtuse. [..........]

i. The opposite triangle shows isosceles, acute triangle. [..........]

j. The opposite triangle shows equilateral, right triangle. [..........]

13. Complete.

a. The .... triangle has no equal sides. [Ismailia 23]

b. In the equilateral triangle, there are three sides are .... in length. [Cairo 23]

c. The triangle has two equal sides is called .... triangle. [El-Monofia 23]

d. If the lengths of sides of a triangle are 3 cm, 3 cm and 5 cm, then the type of this triangle according to the lengths of its sides is .... triangle. [El-Monofia 23]

e. The triangle that its sides are 5 cm , 5 cm and 5 cm is named .... [El-Beheira 23]

f. The type of triangle whose side lengths are 4 cm, 5 cm and 6 cm is ....

g. ABC is an equilateral triangle where AB = 4 cm, then BC = ... cm. [Port Said 23]

h. The type of the opposite triangle is .... angle triangle. [Assiut 23]

i. Any triangle has at least .... acute angles. [Giza 23]

j. The type of triangle which has a right angle and two acute angles according to its angles is ....

k. The type of triangle which has an obtuse angle and two acute angles according to its angles is ....

l. The type of an equilateral triangle according to the its angles is ....

14. **Building Triangles.** Work with your partner to use straws to create the triangles. Draw your triangles in the space provided.

a. Build an equilateral triangle.	**b.** Build a triangle with all acute angles.
c. Build a triangle with an obtuse angle.	**d.** Build a scalene triangle.
e. Build a right triangle.	**f.** Build an isosceles triangle.
g. Build an isosceles triangle with a right angle.	**h.** Build a scalene triangle with an obtuse angle.

15. I am a triangle with a right angle. Can I have three equal sides ? Explain.

16. I am a triangle with two equal sides. Can I be right, obtuse or acute ? Explain.

17. **Write About Math.** Jana says that a right triangle is always isosceles. Do you agree or disagree with Jana ? Explain your thinking with words and pictures.

18. **Write About Math.** Think about the triangles you see in the world around you. List at least three examples of triangles in the real world. If possible, classify them as acute, obtuse or right and as isosceles, scalene and equilateral, for example, the Great Pyramid has four sides that are triangles. The triangles are acute and equilateral.

Multiple Choice Questions

Choose the correct answer.

1. The triangle △ is ________ triangle. [Luxor 23]
   A. acute B. right
   C. obtuse

2. The opposite triangle is ________ angled triangle. [El-Menia 23]
   A. an acute B. an obtuse
   C. a right D. an equilateral

3. The opposite triangle is ________ triangle. [Giza 23]
   A. a right B. an acute
   C. an obtuse D. an equilateral

4. The opposite triangle is ________ triangle.
   A. right B. acute
   C. obtuse D. scalene

5. Which of the following triangles is isosceles triangle ?
   A. B.
   C. D.

6. The equilateral triangle has ________ equal side(s). [El-Menia 23]
   A. 0 B. 1
   C. 2 D. 3

7. The isosceles triangle has ________ equal side(s). [Luxor 23]
   A. 0 B. 1
   C. 2 D. 3

8. The scalene triangle has ________ equal side(s). [Cairo 23]
   A. 0 B. 1
   C. 2 D. 3

9. The triangle has different sides is called ________ [Giza 23]
   A. isosceles B. scalene
   C. equilateral D. otherwise

10. ________ triangle has 3 equal sides. [Luxor 23]
    A. Scalene B. Isosceles
    C. Equilateral D. Right

11. The opposite triangle has ________ right angle(s). [Giza 23]
    A. 1 B. 2
    C. 3 D. 4

12. The triangle of side length of 5 cm, 6 cm, 7 cm is called ________ triangle. [Port Said 23]
    A. equilateral B. isosceles
    C. scalene D. otherwise

13. Any triangle has at least ________ acute angle(s). [El-Monofia 23]
    A. 3 B. 1
    C. 2 D. 4

14. The classification of the opposite triangle by its sides and angles is ________ triangle.
    A. equilateral, right B. isosceles, acute
    C. scalene, right D. equilateral, acute

Lesson 9

▸ Classifying Quadrilaterals



Learn How do you classify quadrilaterals ?

Quadrilaterals can be classified by their angles or pairs of sides. Remember that a quadrilateral is any polygon with 4 sides.



Remember
- Parallel lines do not meet.
- Right angles form square corners.

Parallelogram

A quadrilateral with both pairs of opposite sides parallel and equal in length.

Trapezium

A quadrilateral with only one pair of parallel sides

Rectangle

A parallelogram with four right angles.



A parallelogram with all sides are the same length.

Rectangles and rhombuses are special parallelograms.

Square

A rectangle with all sides are the same length.

A square is a special rectangle. It is also a special rhombus.

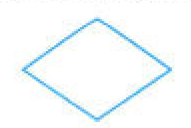
Notes
- The quadrilaterals [Parallelogram, rhombus, trapezium] do not have four right angles.
- Square is a rhombus with four right angles.
- Parallelograms and rhombuses have two acute angles and two obtuse angles.

Notes for parents :
- Ask you child are all squares rectangles ? Are all rectangles squares ? Explain.

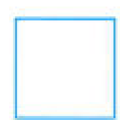
Example 1

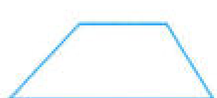
Write the name that best describes each figure.

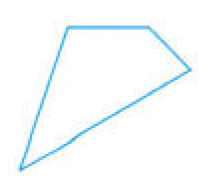
a. 

b. 

c. 

d. 

e. 

f. 

Solution 

a. Parallelogram
b. Rhombus
c. Rectangle
d. Square
e. Trapezium
f. Quadrilateral

Example 2

Use the description of the shape to mention its name.

a. It is a quadrilateral with 2 pairs of parallel sides and has four equal sides and four same-sized angles.

b. It is a quadrilateral with only one pair of parallel sides and has different sides in length and different angles in measure.

c. It is a parallelogram with four-right angles.

d. It is a rectangle with four-equal sides.

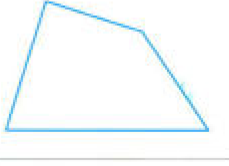
e. It is a parallelogram with four equal sides, two acute angles and two obtuse angles.

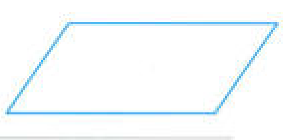
Solution 

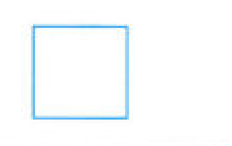
a. Square
b. Trapezium
c. Rectangle
d. Square
e. Rhombus

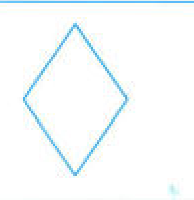
Check your understanding

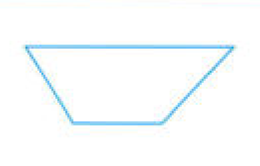
Write the name that best describes each figure.

a. 
______

b. 
______

c. 
______

d. 
______

e. 
______

f. ______

• Let your child say a definition of a rhombus and a parallelogram. How are they alike ? How are they different ?

Exercise

21

on lesson 9

▸ Classifying Quadrilaterals

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Write the name that best describes each figure.

a.

b.

c.

d.

e.

f.

g.

h.

2. **Naming Quadrilaterals.** Write the name of each quadrilateral. Count how many pairs of parallel sides the shape has and classify the angles. Draw at least one example of each quadrilateral using the dot grid.

a.

- Name : ____________________
- Parallel Sides : ____________________
- Angles : ____________________

b.

- Name :
- Parallel Sides :
- Angles :

c.

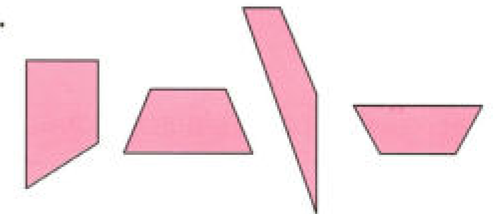
- Name :
- Parallel Sides :
- Angles :

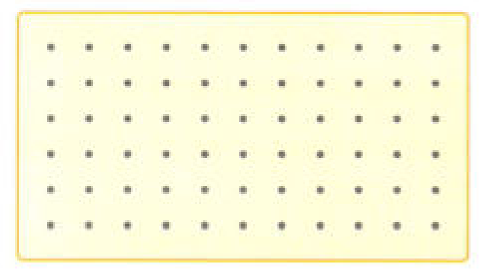
d.



- Name :
- Parallel Sides :
- Angles :

e.





- Name :
- Parallel Sides :
- Angles :

3. Complete.

a. The square has ________ right angles. [El-Menia 23]

b. The rectangle has ________ right angles. [Giza 23]

c. The ________ has only one pair of a parallel sides. [Giza 23]

d. The quadrilateral that has 4 equal sides and 4 right angles is called ________ . [El-Beheira 23]

e. A ________ is a rectangle with 4 equal sides.

f. A quadrilateral is any polygon with ________ sides.

g. A rhombus is a parallelogram with four equal ________ .

h. A ________ is a parallelogram with four equal sides, two acute angles and two obtuse angles.

---

4. True or False.

a. A Parallelogram has two pairs of parallel sides. [________]

b. Square is a rectangle with 2 acute angles and 2 obtuse angles. [________]

c. Rectangles, rhombuses and squares are parallelograms. [________]

d. Rhombus is a rectangle with all sides are the same length. [________]

e. Trapezium is a quadrilateral with only one pair of parallel sides. [________]

f. All the quadrilaterals have 4 equal sides. [________]

g. Rectangle is a parallelogram with four right angles. [________]

h. Square is a rectangle with 4 equal sides in length. [________]

i. Square is a rhombus with 4 equal angles in measure. [________]

j. All parallelograms are quadrilaterals and all quadrilaterals are parallelograms. [________]

---

5. Guess the quadrilateral.

a. Sama is making a design using a quadrilateral that has two pairs of parallel sides with all sides are the same length, but with no right angles.

What shape is she using ? [________]

b. Ramy is making a design using a quadrilateral with only one pair of parallel sides.

What shape could Ramy use ? [________]

c. Magy is making a design using a quadrilateral that has four equal sides and four same-sized angles.

What shape is she using ? [________]

d. Think about your own design. Write a description for your design.

Draw your design and label it.

6. Draw according to each description. label the shapes you drawn.

a. A quadrilateral that has no parallel sides.

b. A quadrilateral that has only 1 right angle.

c. A quadrilateral that has 1 pair of parallel sides.

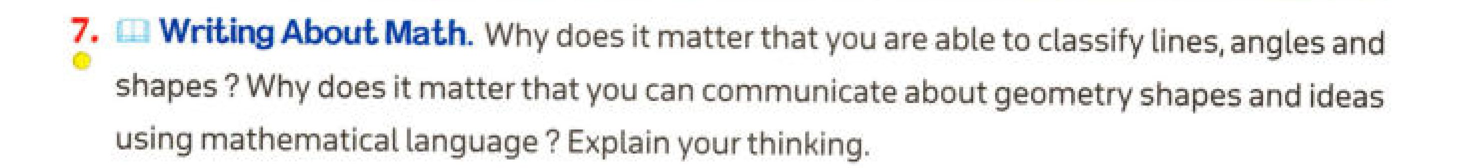
d. A quadrilateral that has 4 right angles and all the sides are equal.

e. A quadrilateral that has 2 pairs of parallel sides with 2 acute angles and 2 obtuse angles.

f. A quadrilateral that has 4 right angles and each two opposite sides are equal in length.

g. A parallelogram which has four equal sides.

h. A rhombus which has right angles.



7. **Writing About Math.** Why does it matter that you are able to classify lines, angles and shapes ? Why does it matter that you can communicate about geometry shapes and ideas using mathematical language ? Explain your thinking.

Multiple Choice Questions

Choose the correct answer.

1. The quadrilateral that has equal sides with 4 right angles is a ________ [El-Menia 23]
   A. rectangle. B. square.
   C. trapezium. D. rhombus.

2. A square has ________ [El-Monofia 23]
   A. 2 acute angles. B. 2 obtuse angles.
   C. 4 right angles.
   D. 4 different angles.

3. A parallelogram has ________ [Giza 23]
   A. 4 right angles. B. 4 equal sides.
   C. 1 pair of parallel sides.
   D. 2 pairs of parallel sides.

4. The rectangle has ________ right angle[s]. [Alex. 23]
   A. 2 B. 3
   C. 4 D. 1

5. A rhombus has ________ equal side[s]. [El-Beheira 23]
   A. 0 B. 1
   C. 2 D. 4

6. A square has ________ equal sides. [Port Said 23]
   A. 3 B. 4
   C. 5 D. 6

7. The ________ has one pair of two parallel sides. [Giza 23]
   A. trapezium B. parallelogram
   C. rhombus D. square

8. ________ has 4 right angles. [El-Menia 23]
   A. Rectangle B. Parallelogram
   C. Rhombus D. Trapezium

9. ________ is a rectangle with 4 equal sides. [El-Menia 23]
   A. Square B. Parallelogram
   C. Rhombus D. Trapezium

10. All the following quadrilaterals with both pairs of opposite sides parallel and equal in length except ________
    A. parallelogram. B. trapezium.
    C. rectangle. D. rhombus.

11. The best describe of the opposite figure is ________
    A. trapezium. B. parallelogram.
    C. rectangle. D. square.

12. The best describe of the opposite figure is ________
    A. trapezium. B. parallelogram.
    C. rectangle. D. square.

Unit Twelve Assessment



1 Choose the correct answer.

1. The opposite figure is named as ______

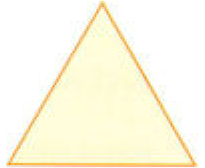


A. $\overleftrightarrow{AB}$ B. $\overline{AB}$ C. $\overrightarrow{BA}$ D. $\overrightarrow{AB}$

2. ______ is a polygon with six sides. [Alex. 23]

A. Triangle B. Pentagon C. Hexagon D. Quadrilateral

3. The classification of the opposite triangle, is ______



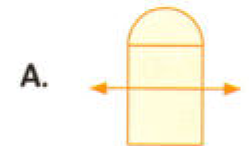
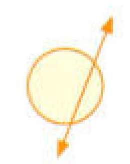
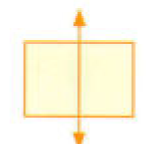
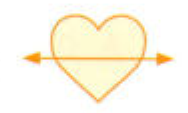
A. isosceles, obtuse B. isosceles, acute


C. equilateral, acute D. scalene, acute

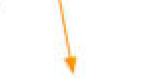
4. A ______ is a parallelogram with all sides are the same length.

A. parallelogram B. rectangle C. trapezium D. rhombus

5. Which of the following figures shows a line of symmetry?

A.  B.  C.  D. 

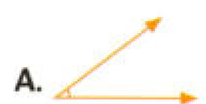
6. The opposite lines show ______




A. parallel lines B. intersecting lines


C. perpendicular lines D. not intersecting lines

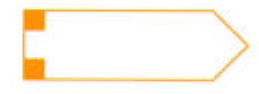
7. Which figure shows a right angle?

A.  B.  C.  D.

2 Complete.

1. A B is named as ______ [El- Beheira 23]

2. How many right angles are there in the opposite figure? [Kafr El-Sheikh 23]



3. Number of lines of symmetry of the figure = ________ [El-Beheira 23]

4. The two lines that will never intersect are called ________ [Alex. 23]

5. ________ is formed by two rays that have the same endpoint.

6. The ________ angle is smaller than a right angle.

7. The ________ triangle has only two equal sides.

8. The square has ________ right angles.

3 Choose the correct answer.

1. A ________ has a vary measuring angles with only one pair of parallel sides.

   A. parallelogram B. rhombus C. square D. trapezium

2. Which of the following figures shows $\overrightarrow{CD}$?

   A. C D B. C D C. C D D. C D

3. The equilaterlal triangle has ________ equal side[s].

   A. 0 B. 1 C. 2 D. 3

4. The opposite two lines are ________

   A. parallel B. not intersecting
   C. perpendicular D. intersecting and not perpendicular

5. The number of the right angles in the opposite figure is ________

   A. 1 B. 2 C. 3 D. 4

6. The number of equal sides in the scalene acute triangle is ________.

   A. 0 B. 1 C. 2 D. 3

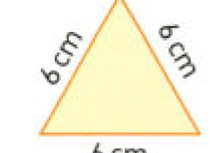
7. A parallelogram has ________

   A. 4 equal sides B. 4 right angles
   C. 1 pair of parallel sides D. 2 pairs of parallel sides

4 **Answer the following questions.**

1. Hany is making a design using a quadrilateral that has four equal sides and four same-sized angles. What shape is Hany using ? Draw the design.

____



2. **a.** The type of the opposite triangle according to its angles is ________

   b. The perimeter of triangle = ________ cm. [Alex. 23]

3. **Draw $\overleftrightarrow{LM}$ is perpendicular to $\overleftrightarrow{AB}$.** [El-Monofia 23]

   A • B

4. **a. Draw an obtuse angle.** [Kafr El-Sheikh 23]

   b. Draw a right angle. [Alex. 23]

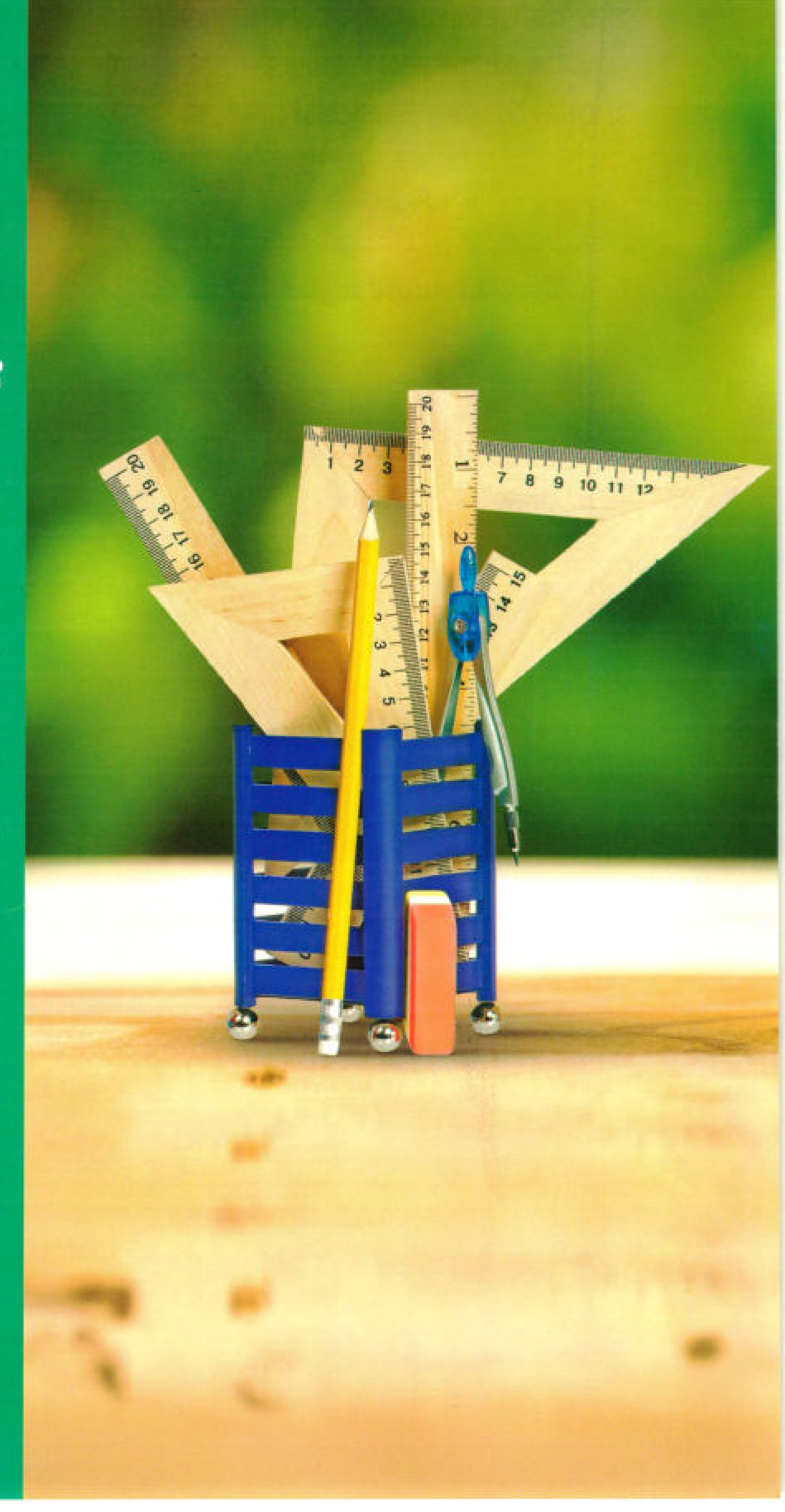
THEME FOUR

Applications of Geometry and Measurement

UNIT 13

Angles of a Circle

- **Concept 1 :** Breaking the Circle into Angles
- **Concept 2 :** Measuring and Drawing Angles



Concept 1

Breaking the Circle into Angles



Lesson No.	Lesson Name	Learning Objectives
Lesson 1	The Circle and the Degrees	• Students will explain the relationship between circles and angle measurement.
Lesson 2	Measuring Angles Using a Circle Model	• Students will identify angle measurements on a circle model. • Students will relate fractions of a circle to angle measurements.

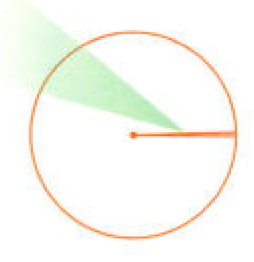
Lesson 1

The Circle and the Degrees

Learn Types of angles in a circle

- We usually measure angles in degrees[°].



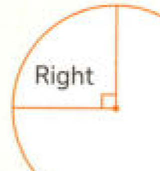


- There are 360 degrees in a circle.
- An angle that turns through $\frac{1}{360}$ of a circle is called "one-degree angle".

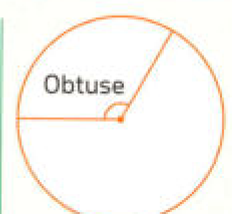




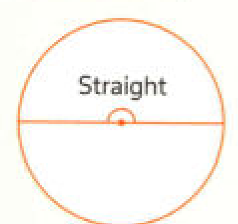
Acute angle
Between 0° and 90°



Right angle
exactly 90°
$\frac{1}{4}$ of a full rotation



Obtuse angle
Between 90° and 180°



Straight angle
exactly 180°
$\frac{1}{2}$ of a full rotation

Notes

Circle can be divided into 4 right angles or two straight angles. Each circle has 360°

- A right angle is 90 degrees because a right angle is $\frac{1}{4}$ of the circle or because there are 4 right angles in the circle and $360° \div 4 = 90°$
- There are 180 degrees in a straight angle because it is half of the circle, or because it is the same as 2 right angles.

90° 90° 90° 90°

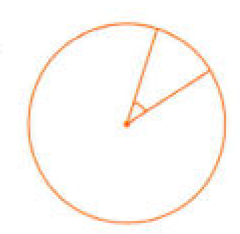
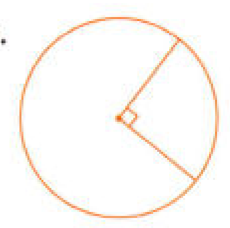
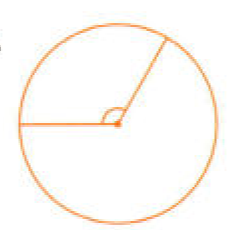
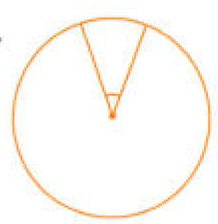
Notes for parents :

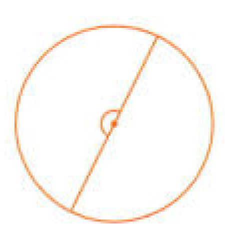
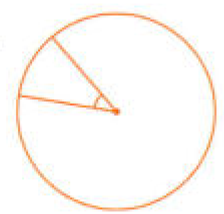
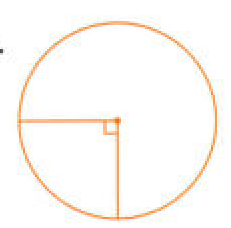
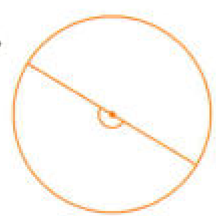
- Ask your child to identify types of angles in a circle and tell the degrees measure of each type of angles.



Example 1

Classify each marked angle of the following.

a. 
b. 
c. 
d. 

e. 
f. 
g. 
h. 

Solution 

a. acute angle
b. right angle
c. obtuse angle
d. acute angle
e. straight angle
f. acute angle
g. right angle
h. straight angle

Example 2

Classify each angle according to the measure.

a. 60°
b. 90°
c. 180°
d. 147°
e. 88°
f. 92°

Solution 

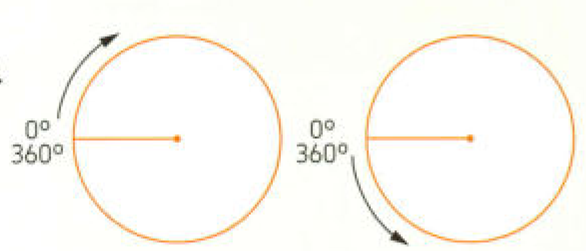
a. acute angle
b. right angle
c. straight angle
d. obtuse angle
e. acute angle
f. obtuse angle

Circle directions

- There are two directions they can go on a circle. as shown on the opposite figures
- 0° is the starting point.



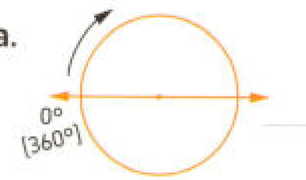
- Full rotation makes 360°.

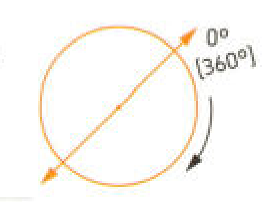


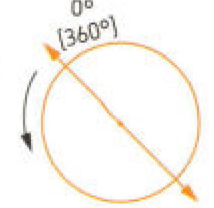
• Ask your child to draw more examples for acute, right, obtuse or straight angles in a circle.

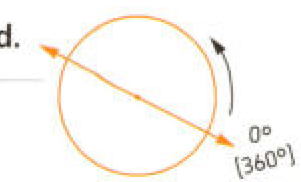
Example 3

Move from 0° in the given direction and draw a right angle, then label 90° and 180° on each circle.

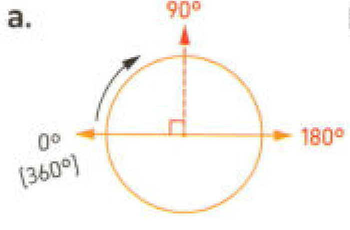
a. 

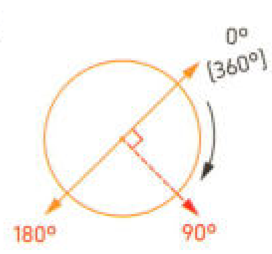
b. 

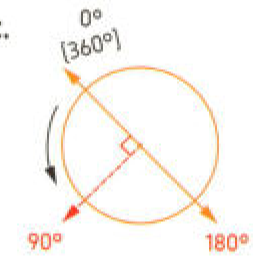
c. 

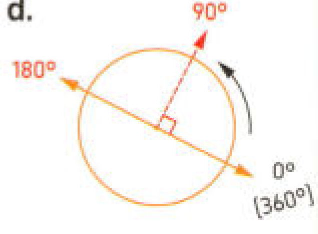
d. 

Solution

a. 

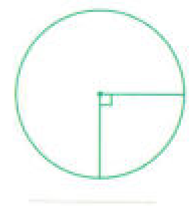
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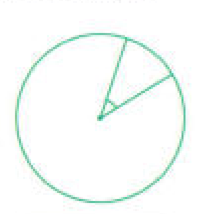
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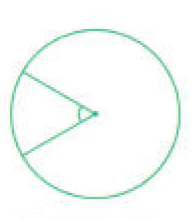
d. 

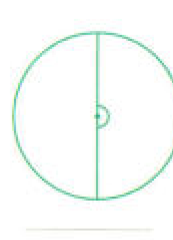
Check your understanding

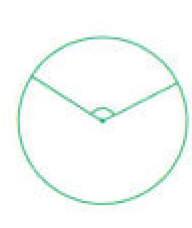
Classify each marked angle of the following.

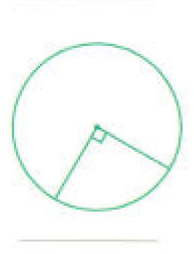
a. 

b. 

c. 

d. 

e. 

f. 

Notes for parents :

- Tell your child that the point 0° in a circle still the same after one or more full rotation in any direction.

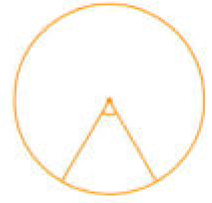
Exercise 22 on lesson 1

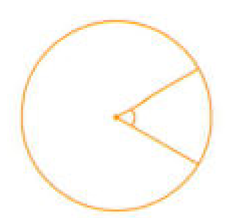
The Circle and the Degrees

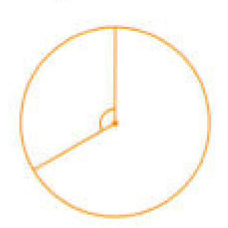
● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

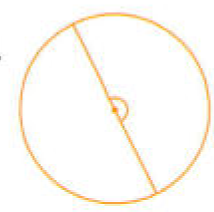
1. Classify each angle as acute, right, obtuse or straight.

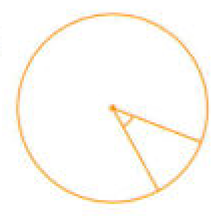


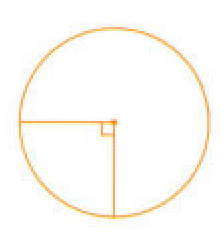
a.  ....

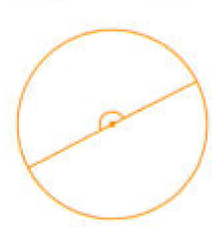
b.  ....

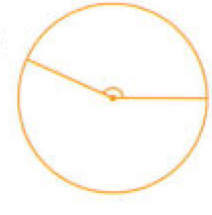
c.  ....

d.  ....

e.  ....

f.  ....

g.  ....

h.  ....

2. Classify each angle according to its measure.

a. 79°	b. 120°	c. 90° ....
d. 30°	e. 180°	f. 89° ....
g. 179°	h. 95°	i. 60° ....
j. 176°	k. 130°	l. 27° ....

3. Complete.

a. An acute angle measures between ....° and ....°

b. An obtuse angle measures between ....° and ....°

c. The measure of acute angle is less than ....° [Alex. 23]

d. The measure of right angle = ...° [El-Menia 23]

e. The measure of the straight angle = ...° [Luxor 23]

f. .... measures between 0° and 90° [Alex. 23]

g. The angle whose measure 90° is called ____________ angle. [Cairo 23]

h. The angle of measure less than 90° is ____________ angle. [El-Menia 23]

i. The angle which its measure equal 30° is ____________ angle. [El-Beheira 23]

j. The angle which its measure is 120° called ____________ angle. [Souhag 23]

k. 84° is classified as ____________ angle. [El-Beheira 23]

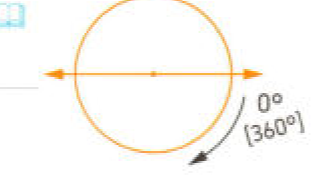
l. The angle which its measure equals 170° is ____________ angle. [Kafr El-Sheikh 23]

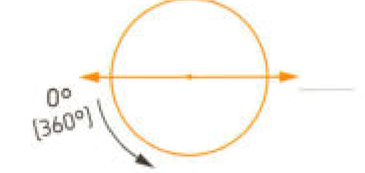
m. There are ____________ degrees in a circle.

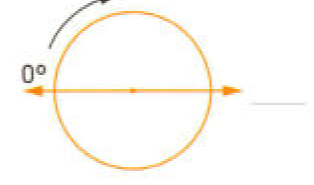
n. $\frac{1}{2}$ of a circle measures ____________ °

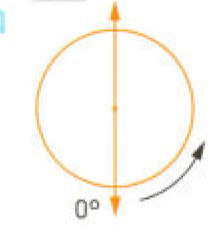
o. $\frac{1}{4}$ of a circle measures ____________ °

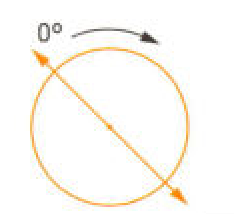
4. Circles and Angles **Move from 0° in the given direction and draw a right angle. Then, label 90° and 180° on each circle.**

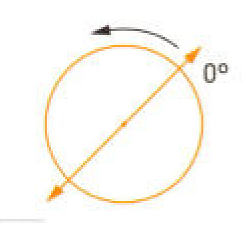
a.


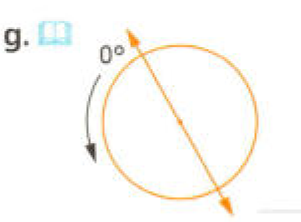
b.


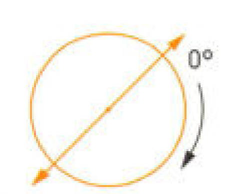
c.


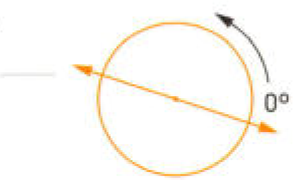
d.


e.


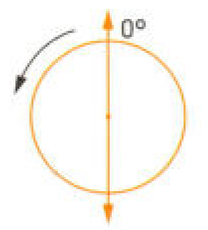
f.


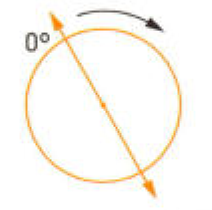
g.


h.


i.


j.

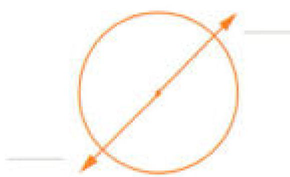

k.


l.


5. Angles on a circle. **Draw the given angles on the circles and label them acute or obtuse. Label 0° and 180° and fill in the blanks.**

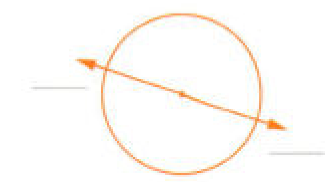
a. Draw an acute angle.

An acute angle measures between ________ and ________ degrees.



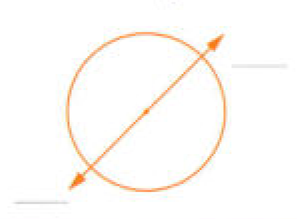
b. Draw an obtuse angle.

An obtuse angle measures between ________ and ________ degrees.



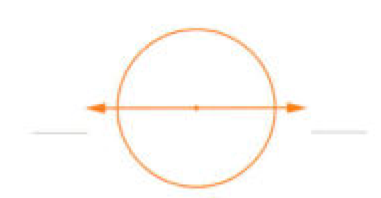
c. Draw a straight angle

A straight angle measures ________ degrees.

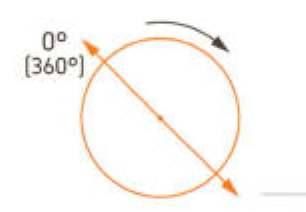


d. Draw a right angle.

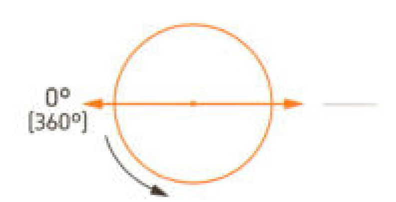
A right angle measures ________ degrees.



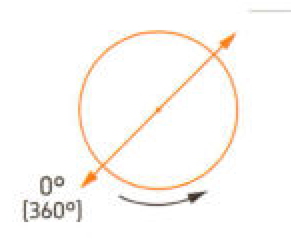
6. Label 180°. Draw an obtuse angle moving from 0° in the given direction. Label the angle.



7. Label 180°. Draw an acute angle moving from 0° in the given direction. Label the angle.



8. Label 180°. Draw a right angle moving from 0° in the given direction. Label the angle.



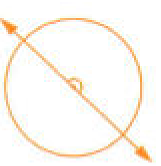
Multiple Choice Questions

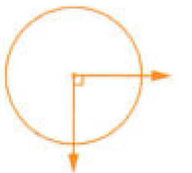


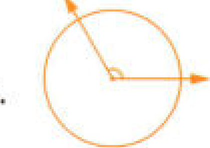
Choose the correct answer.

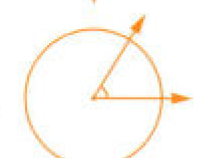


1. Which of the following figures shows a $\frac{1}{2}$ of a full rotation? [Luxor 23]

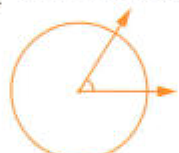
A. 

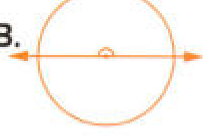
B. 

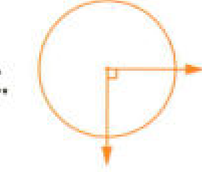
C. 

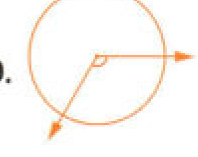
D. 

2. Which of the following figures shows a $\frac{1}{4}$ of a full rotation?

A. 

B. 

C. 

D. 

3. The measure of straight angle = ______ the measure of circle. [Alex. 23]

A. $\frac{1}{2}$ B. $\frac{1}{3}$ C. $\frac{1}{4}$ D. $\frac{1}{5}$

4. There are ______ degrees in a circle. [Luxor 23]

A. 360° B. 180° C. 25° D. 90°

5. Circle can be divided into ______ right angles. [Ismailia 23]

A. 1 B. 2
C. 3 D. 4

6. The angle which is represented by the figure is ______

A. acute B. obtuse
C. right D. straight



7. The angle whose measure is less than 90° is ______ angle. [Kafr El-Sheikh 23]

A. an acute B. a straight
C. an obtuse D. a right

8. Which is a measure of an acute angle? [Souhag 23]

A. 40° B. 90°
C. 120° D. 180°

9. The measure greater than 0° and less than 90° is a measure of ______ angle. [Giza 23]

A. an acute B. an obtuse
C. a right D. a straight

10. ______ angle measures between 90° and 180° [Giza 23]

A. An acute B. An obtuse
C. A right D. A straight

11. The angle whose measure is 99° is called ______ angle. [Alex. 23]

A. acute B. right
C. obtuse D. straight

12. The right angle measures exactly ______ ° [El-Beheira 23]

A. 90 B. 30
C. 0 D. 61

13. The measure of straight angle = ...

[El-Monofia 23]

A. 108
B. 118
C. 180
D. 90

14. An angle whose measure is 88° is called .... angle.

[El-Monofia 23]

A. an acute
B. a right
C. an obtuse
D. a reflex

15. The angle whose its measure equals 170° is .... angles.

[El-Monofia 23]

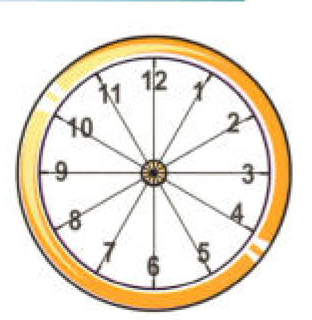
A. an acute
B. an obtuse
C. a right
D. a straight

Lesson 2

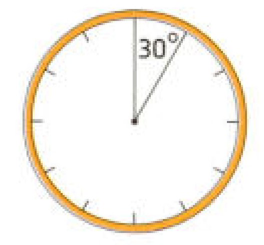
▸ Measuring Angles Using a Circle Model

Learn Measuring angles using a circle model

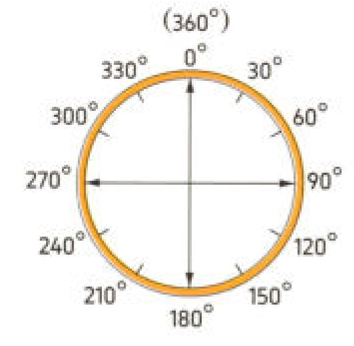
- The model at the right has been divided into 12 equal angles. As the measure of the circle is 360°, then the measure of each angle equals $\frac{1}{12}$ of the circle



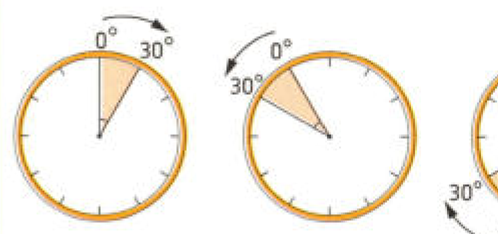
- The measure of one angle $= \frac{1}{12} \times 360°$
  $= 360° \div 12 = 30°$

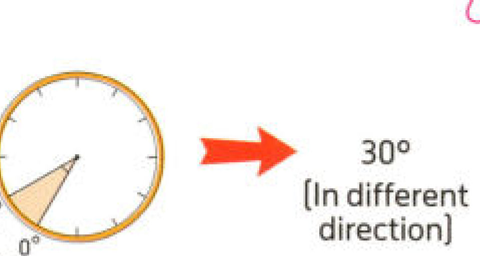


- The measure of the angles on a model can be shown as the following.



Note that





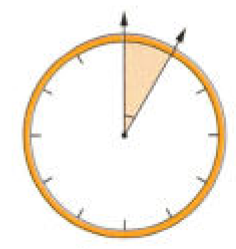
- 0° can be anywhere on a model.

Notes for parents :

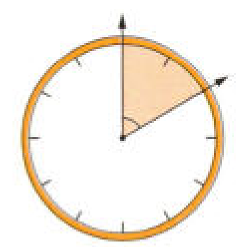
- Ask your child if the model has been divided into 12 equal angles, what is the measure of each angle?



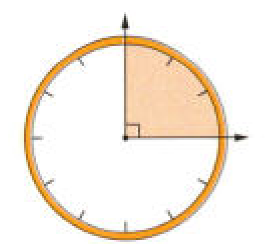
▸ Relate fractions of a circle to angle measurments



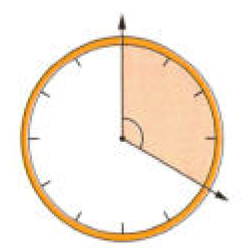
$\frac{1}{12} = 30°$



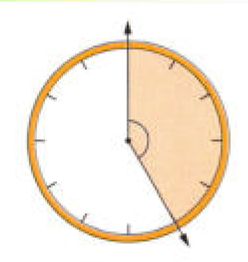
$\frac{2}{12} = \frac{1}{6} = 60°$



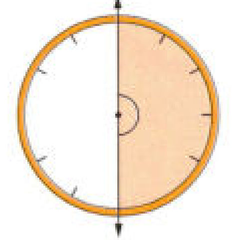
$\frac{3}{12} = \frac{1}{4} = 90°$



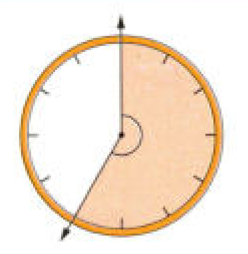
$\frac{4}{12} = \frac{1}{3} = 120°$



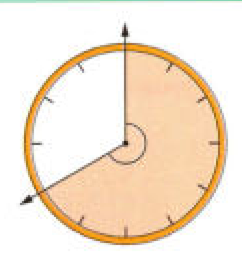
$\frac{5}{12} = 150°$



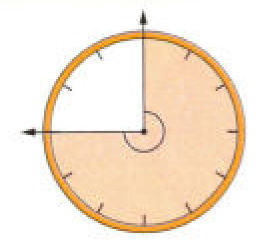
$\frac{6}{12} = \frac{1}{2} = 180°$



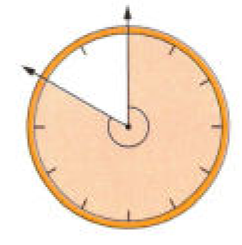
$\frac{7}{12} = 210°$



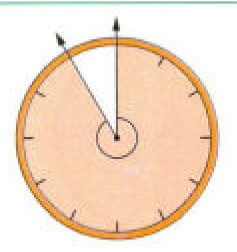
$\frac{8}{12} = \frac{2}{3} = 240°$



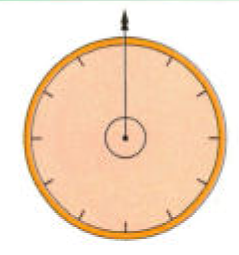
$\frac{9}{12} = \frac{3}{4} = 270°$



$\frac{10}{12} = \frac{5}{6} = 300°$



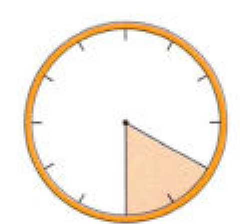
$\frac{11}{12} = 330°$

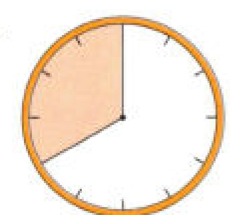


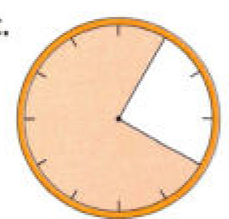
$\frac{12}{12} = 1 = 360°$

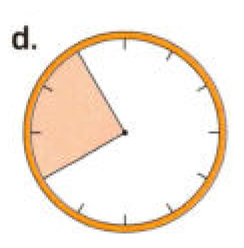
Example 1

Write the fraction of the model colored and how many degrees of the model that fraction represents.

a. 

b. 

c. 

d. 

Solution 

a. $\frac{2}{12} = \frac{1}{6}$; 60° [2 × 30° = 60°]

b. $\frac{4}{12} = \frac{1}{3}$; 120° [4 × 30° = 120°]

c. $\frac{9}{12} = \frac{3}{4}$; 270° [9 × 30° = 270°]

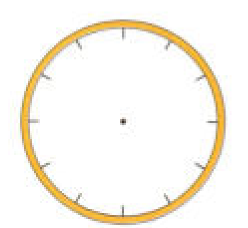
d. $\frac{3}{12} = \frac{1}{4}$; 90° [3 × 30° = 90°]

• Let your child notice the relation between fractions of a circle to angle measurements.

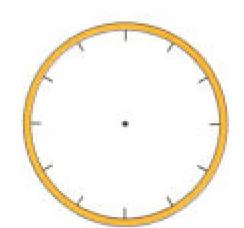
Example 2

Use the blanck model and what you know about benchmark angles to write the missing angle measurements.

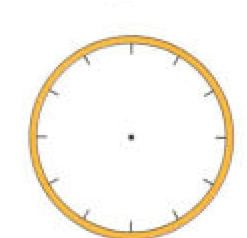
a. $\frac{1}{12}$



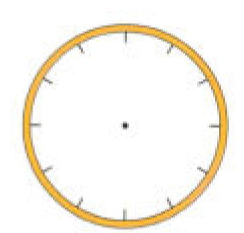
b. $\frac{5}{12}$



c. $\frac{10}{12}$



d. $\frac{3}{4}$



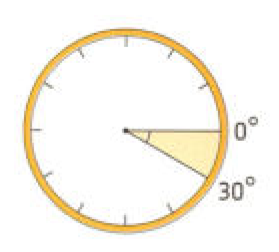
Note that

Angles on the model may vary in shape but not in measure.

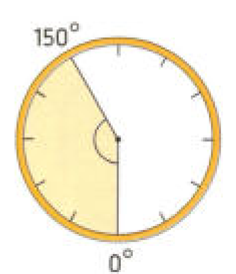
Solution



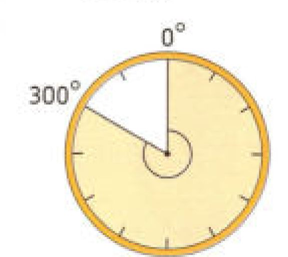
a. 30°



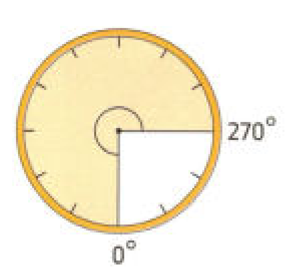
b. 150°



c. 300°



d. 270°



Example 3

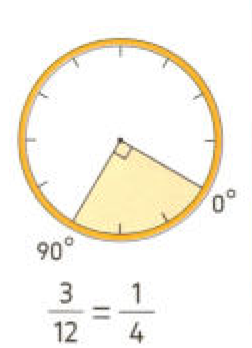
Show the following angles on the blank model and write the related fraction.

a. 90° b. 330° c. 120° d. 240°

Solution

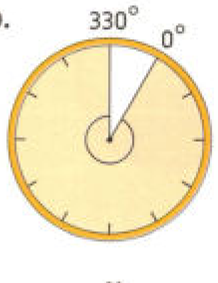


a.



$\frac{3}{12} = \frac{1}{4}$

b.



$\frac{11}{12}$

c.

120°
0°

$\frac{4}{12} = \frac{1}{3}$

d.

0°
240°

$\frac{8}{12} = \frac{2}{3}$

Note that

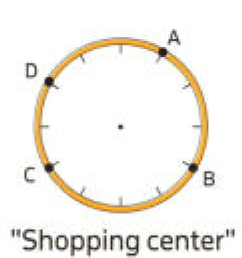
Angles on the model may vary in shape but not in measure.

Notes for parents :

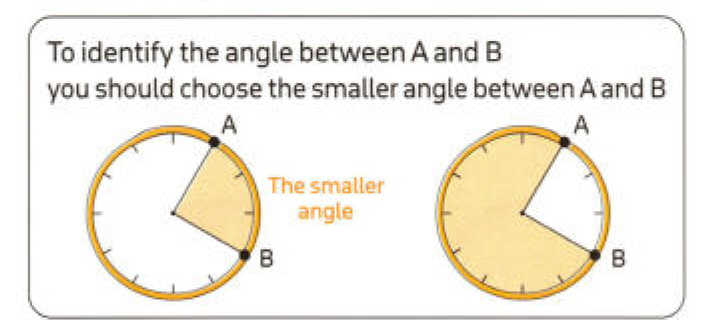
- On a sheet of paper draw a blank model and color a section of it, then ask your child to tell you the measure of the angle.

Example 4

For each problem, imagine you are walking from one point, through the shopping center, to the second point. Identify the angles traveled between the points in shopping center. [Hint : Each section of the model measures 30 degrees.]



"Shopping center"



a. A and B

c. C and D

e. B and C

b. B and D

d. C and A

f. A and D

Solution



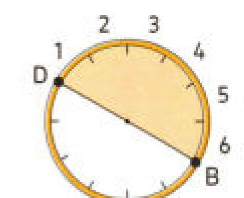


a. 90° [$3 \times 30° = 90°$]



c. 60° [$2 \times 30° = 60°$]

e. 120° [$4 \times 30° = 120°$]



b. 180° [$6 \times 30° = 180°$]

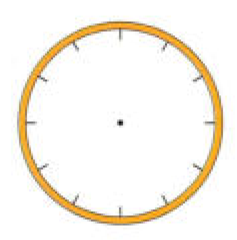
d. 150° [$5 \times 30° = 150°$]

f. 90° [$3 \times 30° = 90°$]

Check your understanding

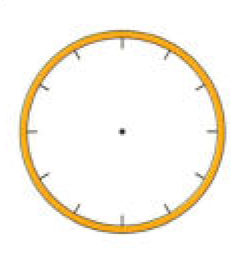
Use the blank model and what you know about benchmark angles to write the missing angle measurements in degrees.

a. $\frac{6}{12}$



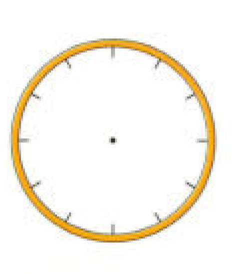
______

b. $\frac{1}{6}$



______

c. $\frac{3}{4}$



______

• Let your child remember that the angle between each two consecutive numbers of the model equals 30°.

Exercise
23
on lesson 2

▸ Measuring Angles Using a Circle Model





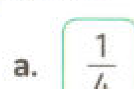




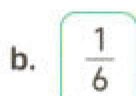




1. Match.



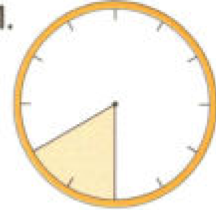
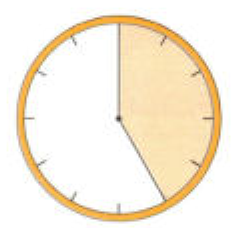
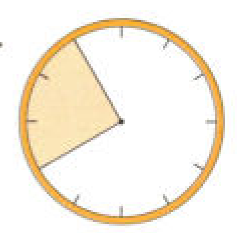
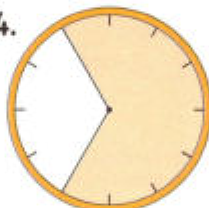
a. $\frac{1}{4}$



b. $\frac{1}{6}$

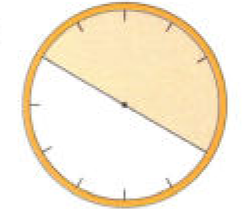
c. $\frac{2}{3}$

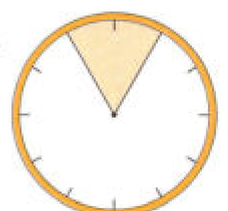
d. $\frac{5}{12}$

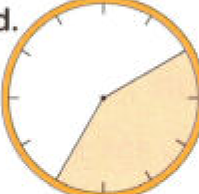
1. 
2. 
3. 
4. 

2. Write the measure of colored angles in degrees.

a. 

b. 

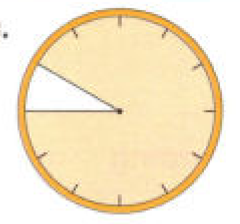
c. 

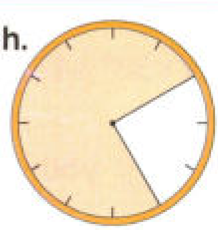
d. 

e. 

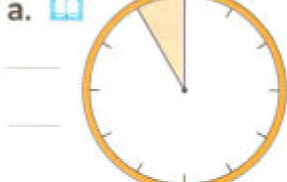
[El-Menia 23]

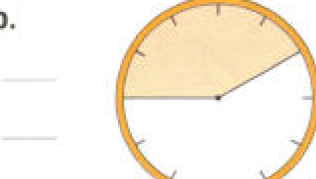
f.

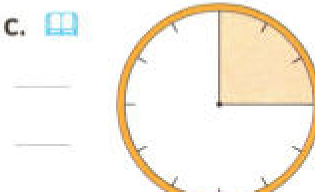
g. 

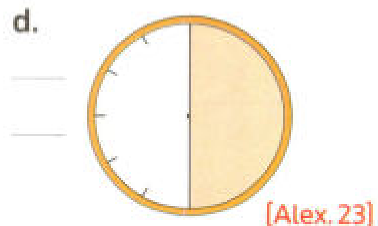
h. 

3. Fractions and Angles on a clock. Write the fraction of the colored model and how many degrees of the clock that fraction represents.

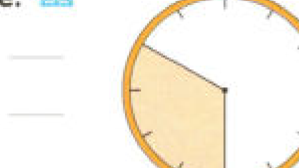
a. 

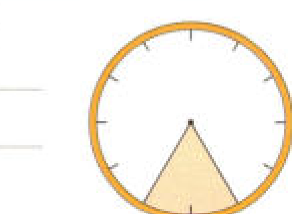
b. 

c. 

d. 

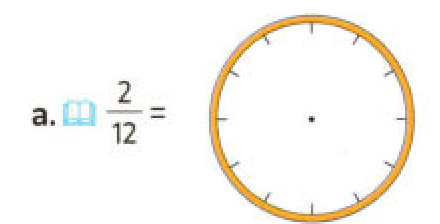
[Alex. 23]

e. 

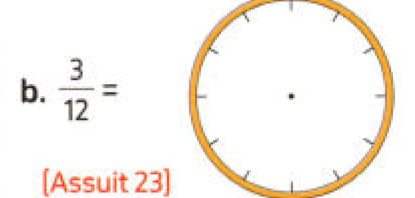
f. 

4. Use the blank model and what you know about benchmark angles to write the missing angles measurements.

a. $\frac{2}{12}$ =

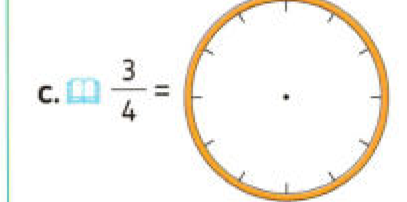


b. $\frac{3}{12}$ =

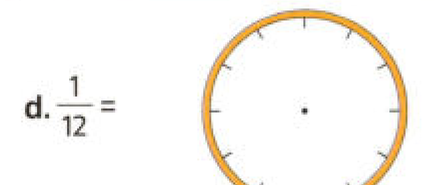


[Assuit 23]

c. $\frac{3}{4}$ =

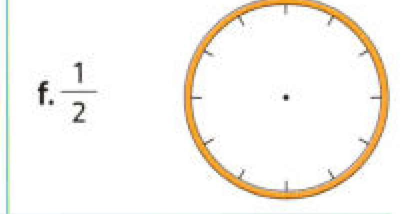


d. $\frac{1}{12}$ =



e. $\frac{5}{12}$ =

f. $\frac{1}{2}$



g. $\frac{11}{12}$ =

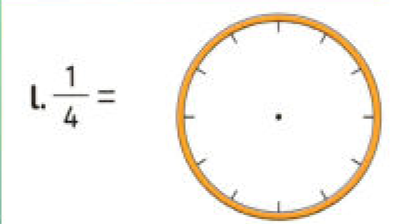
h. $\frac{1}{3}$ =

i. $\frac{2}{3}$ =

j. $\frac{5}{6}$ =

k. $\frac{6}{12}$ =

l. $\frac{1}{4}$ =



5. Show the following angle measurements on blank model and write the related fractions.

a. 60°　b. 210°　c. 90°　d. 300°

e. 270°　f. 150°　g. 360°　h. 180°

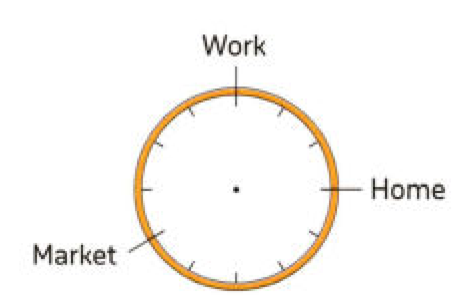
6. **Traveling Around Town.** For each problem, imagine you are walking from one place, through the center of town, to the second place. Identify the angles traveled betwen the places in town.



a. Work and home

b. Work and market

c. Home and market



7. **Traveling Around Town.** **For each problem, imagine you are walking from one place, through the center of town, to the second place. Identify the angles traveled between the places in town.**
(Hint : Each section of the model measures 30 degrees).

a. Work and shopping center.

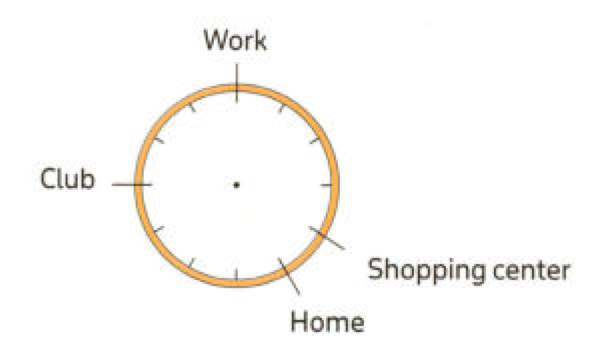
b. Work and home.

c. Work and club.

d. Shopping center and home.

e. Shopping center and club.

f. Club and home.



8. **Traveling Around Town.** **For each problem, imagine you are walking from one place, through the center of town, to the second place. Identify the angles traveled between the places in town. (Hint: Each section of the model measures 30 degrees.)**

a. Home and school.

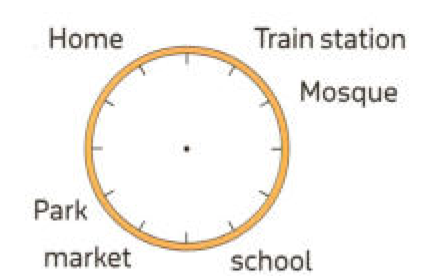
b. Park and school.

c. Market and home.

d. Mosque and train station.

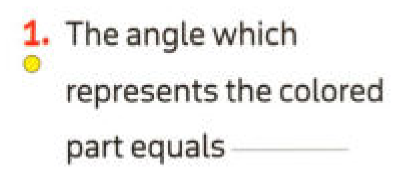
e. Mosque and market.

f. School and market.

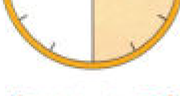


Multiple Choice Questions

Choose the correct answer.

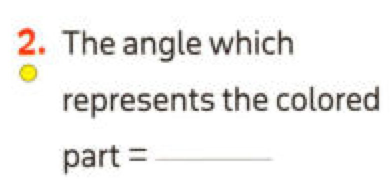


1. The angle which represents the colored part equals ______

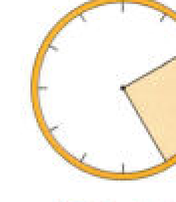


A. 30° B. 60° C. 90° D. 120° [El-Menia 23]





2. The angle which represents the colored part = ______



A. 150° B. 170° C. 100° D. 90° [El-Beheira 23]

3. The angle which represents the colored part = ______



A. 60° B. 120° C. 90° D. 300° [Kafr El-Sheikh 23]

4. The fraction $\frac{1}{12}$ of a circle makes an angle of measure ______ degrees.

A. 30 B. 60 C. 90 D. 180 [Alex. 23]





5. $\frac{1}{2}$ of a circle measured ______

A. 60° B. 90° C. 180° D. 360° [Luxor 23]

6. $\frac{1}{3}$ of a circle measured ______

A. 0° B. 120° C. 100° D. 360° [Kafr El-Sheikh 23]

7. Measure of the angle which represents $\frac{1}{4}$ of the circle = ______ ° [Port Said 23]

A. 90 B. 180 C. 270 D. 360

8. The fraction $\frac{5}{12}$ makes an angle of measure ______ [Souhag 23]

A. 90° B. 150° C. 210° D. 300°

9. The angle which measures 270° shows a fraction ______

A. $\frac{1}{3}$ B. $\frac{2}{3}$ C. $\frac{3}{4}$ D. $\frac{1}{2}$

10. The angle which measure is 360° represents a fraction of ______ [Giza 23]

A. $\frac{1}{2}$ B. $\frac{3}{4}$ C. $\frac{12}{12}$ D. $\frac{4}{10}$

11. What fraction of a circle a 60° angle would represent?



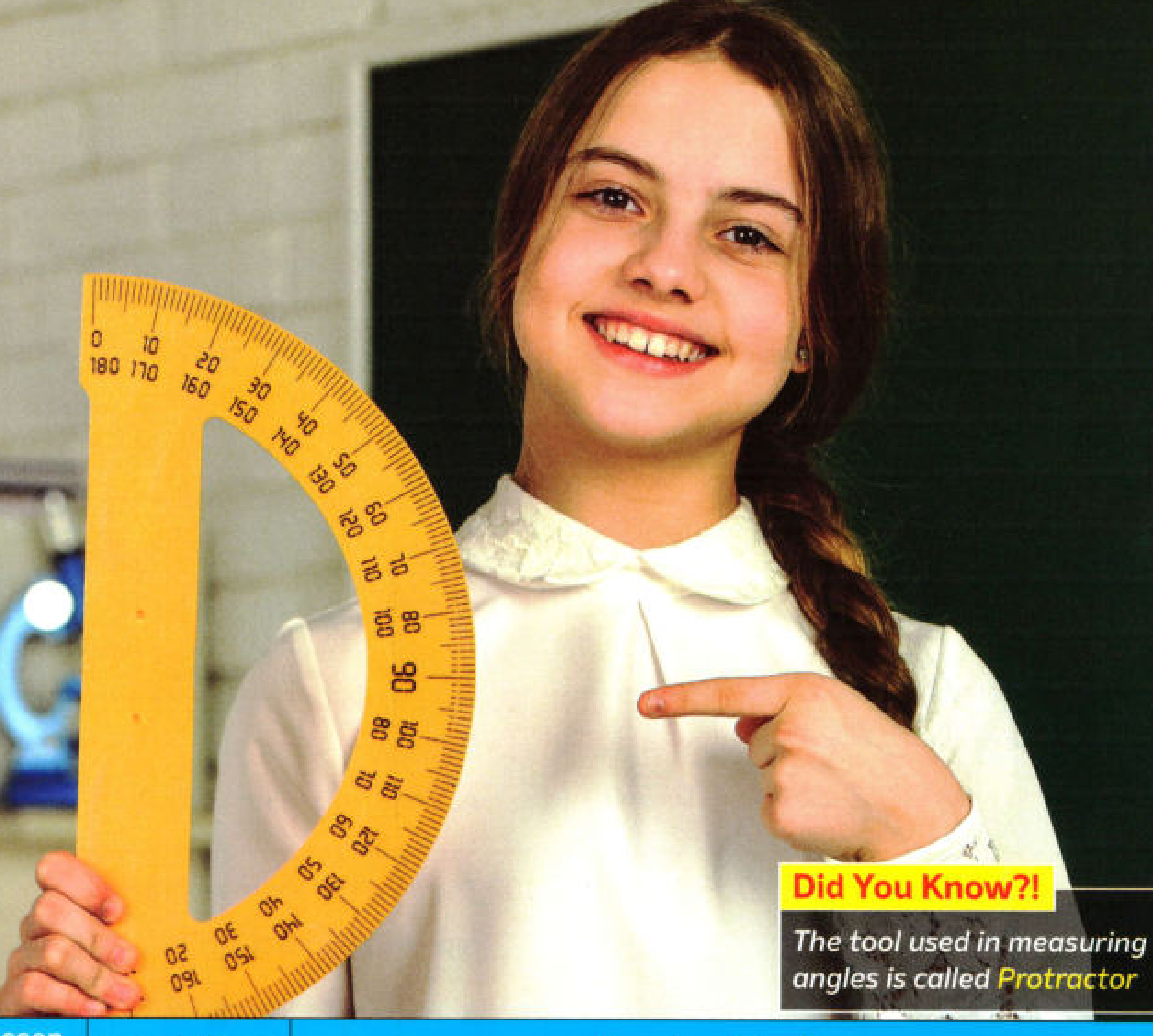
A. $\frac{1}{2}$ B. $\frac{1}{3}$ C. $\frac{1}{4}$ D. $\frac{1}{6}$

12. What fraction of a circle a 1° angle would represent?

A. $\frac{1}{360}$ B. $\frac{60}{360}$ C. $\frac{300}{360}$ D. $\frac{360}{360}$

Concept 2

Measuring and Drawing Angles



Did You Know?!

The tool used in measuring angles is called Protractor

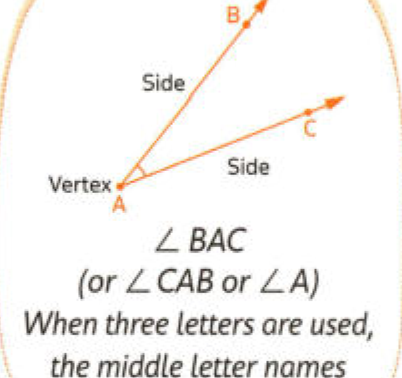
Lesson No.	Lesson Name	Learning Objectives
Lessons 3 & 4	Using Protractor	• Students will identify the parts of angles. • Students will name angles. • Students will describe the characteristics of a protractor.
	Measuring Angles	• Students will use a protractor to measure angles.
Lessons 5 to 7	Drawing Angles	• Students will use a protractor to draw angles between 0 and 180 degree.
	Drawing Angles with a Protractor	• Students will use a protractor to draw angles between 0 and 180 degree.
	Classifying Triangles Using Geometric Tools	• Students will classify triangles according to the length of its sides using the ruler. • Students will classify triangles using the measures of its angles using the protractor.

Lessons 3 & 4

▸ Using Protractor
▸ Measuring Angles

Learn 1 Naming angles

- An angle is formed by two rays that have the same endpoint.
- Angle BAC (written ∠ BAC) is shown at the right. Its **sides** are $\overrightarrow{AB}$ and $\overrightarrow{AC}$. Point A is called the **vertex**.



∠ BAC
(or ∠ CAB or ∠ A)
When three letters are used, the middle letter names the vertex.

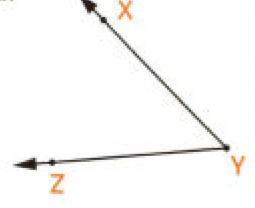
Note

∠ is an angle symbol and read as angle.

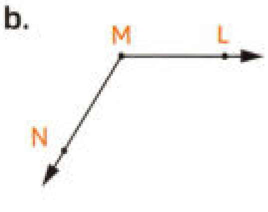
Example 1

1. Name the rays and the vertex of each angle.
2. Name each angle in three different ways :

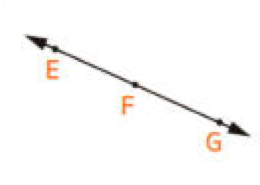
a.



b.



c.



Solution 

a.
1. $\overrightarrow{YX}$, $\overrightarrow{YZ}$
   vertex Y
2. ∠ XYZ
   ∠ ZYX
   ∠ Y

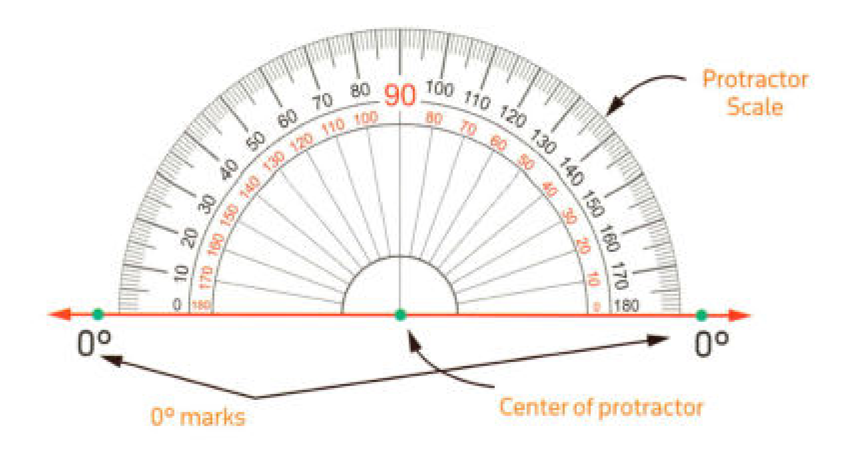
b.
1. $\overrightarrow{ML}$, $\overrightarrow{MN}$
   vertex M
2. ∠ NML
   ∠ LMN
   ∠ M

c.
1. $\overrightarrow{FE}$, $\overrightarrow{FG}$, vertex F
2. ∠ EFG
   ∠ GFE
   ∠ F

Notes for parents :

- Draw an angle on a sheet of paper. Let your child point to its vertex and its sides.
- Draw angle ABC and let your child name it in different ways.

Learn 2 How can you measure angles ?



- You can use a protractor to find the size, or measure of an angle.
  An angle is measured in degrees (°).
- A protractor is an instrument used to measure the size of an angle.
- A protractor has a centre which locate the vertex of an angle.
- A protractor has two graduations and you first decide if the direction of the angle is right or left of 90° (obtuse or acute) Then, while you use the protractor, you choose the measure from the appropriate direction.

▸ To Measure an angle

Follow the instructions :

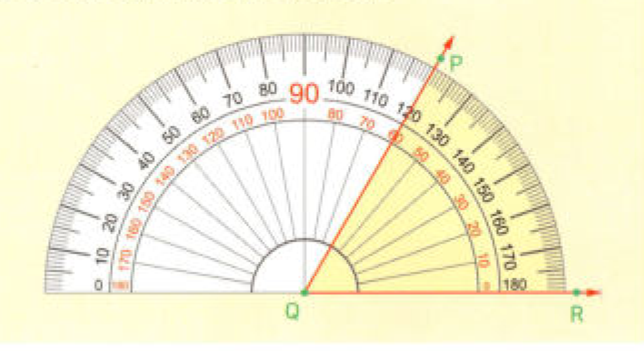
Step 1 : Line up the center mark with the vertex of the angle.

Step 2 : Make sure that the zero line of the protractor is lined up with one of the angle's rays.

Step 3 : Think about what type of angle you are measuring. If you are measuring an acute angle. Use the numbers that are less than 90° If you are measuring an obtuse angle. Use the numbers that are greater than 90°

Step 4 : Look at where the angle's other ray passes through the protractor.

- In the opposite figure the ray across the scales at 120° and 60° while the angle is an acute, then the measure 60° is correct.



Notes for parents :

- Remind your child to follow the instructions every time to measure any angle and remember to measure the inner angle between the two rays.

• Angles can be classified by the way their measures compared to 90°

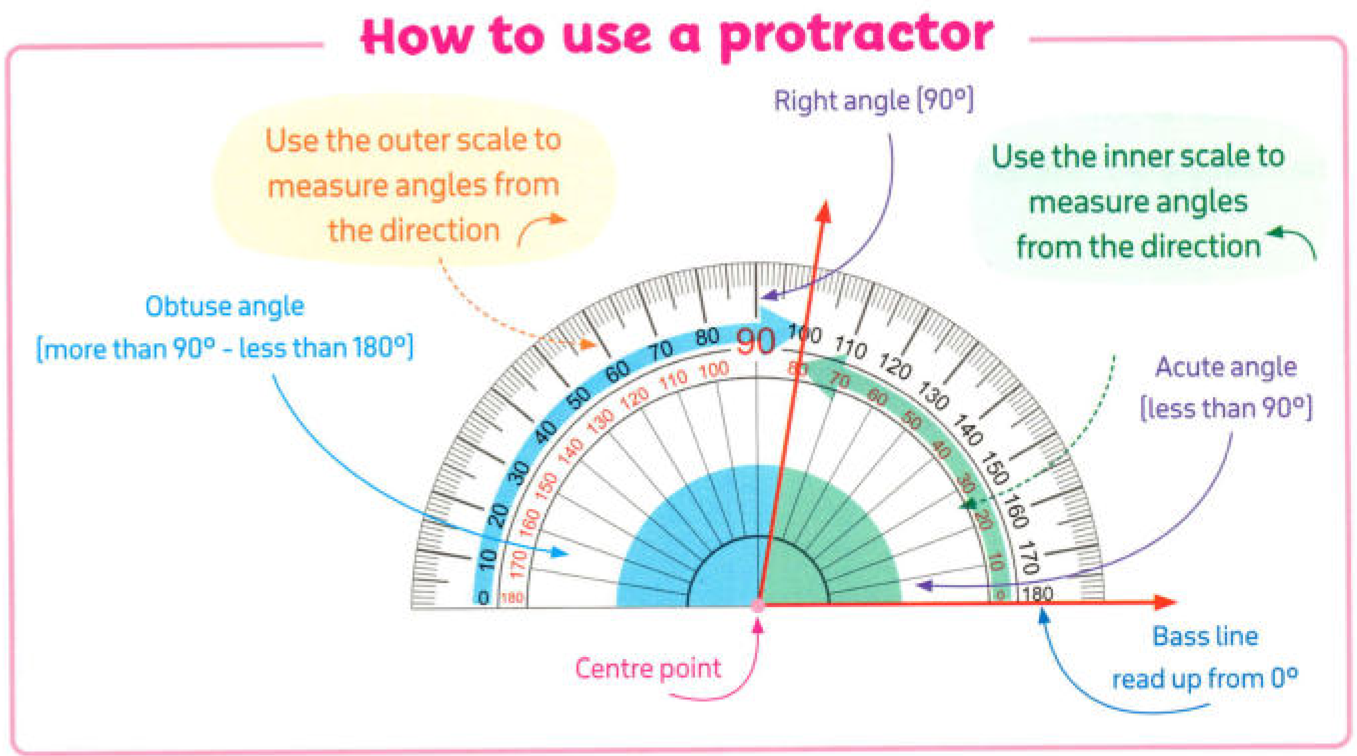
The measure of ∠ PQR = 50°
∠ PQR is **an acute angle.** Its measure is less than 90°

The measure of ∠ LMN = 90°
∠ LMN is **a right angle.** Its measure is 90°

The measure of ∠ DEF = 105°
∠ DEF is **an obtuse angle.** Its measure is greater than 90° and less than 180°

The measure of ∠ STU = 180°
A straight angle measures 180°
∠ STU is a **straight angle**.

How to use a protractor



• Ask your child to name the angles in this page in different ways and tell how to use a protractor to measure them.

Example 2

Trace each angle and extend its sides. Use a protractor to measure :

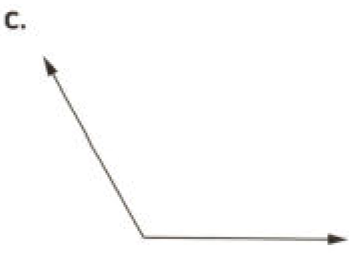
a.



b.



c.



Solution 

a. 90°

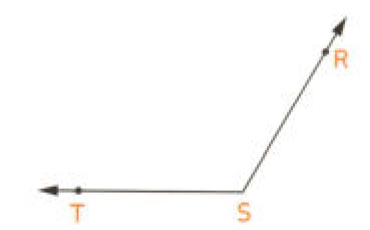
b.  40°

c. 120°

> *Math Hint*
>
> *To measure an angle, you may need to trace it and extend its sides.*

Example 3

Give three different names for the opposite angle. Identify the vertex and sides. Measure the angle using a protractor.



Solution 

The names : ∠ TSR , ∠ RST , ∠ S

The vertex : Point S

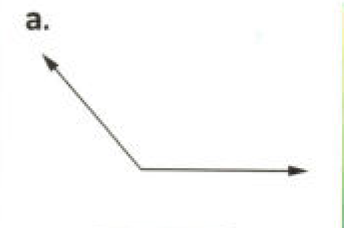
The sides : $\overrightarrow{SR}$, $\overrightarrow{ST}$

The measure of ∠ S is 120°

Check your understanding

Use a protractor to measure each of the following angles.

a.



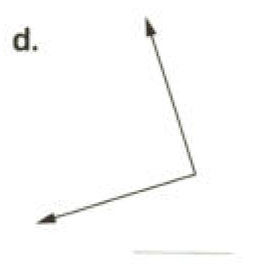
b.



c.



d.



Notes for parents :

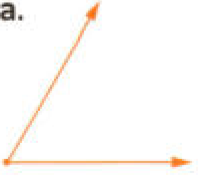
- Tell your child that no matter dierctions of the angle and tell him/her to extend the line in the same direction to use the protractor easily.

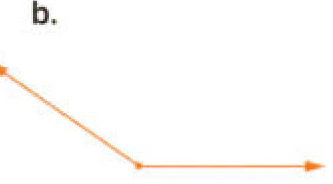
Exercise 24
on lessons 3&4

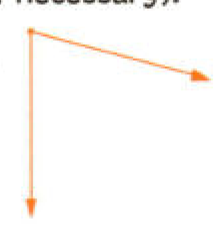
- Using Protractor
- Measuring Angles

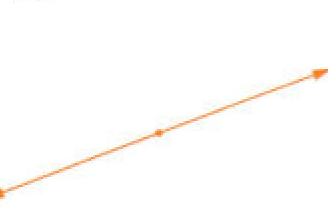
● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

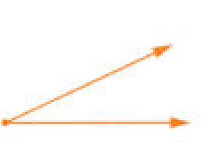
1. **Classify each angle as acute, right, obtuse, or straight. Then measure each angle. (Hint: Trace each angle and draw longer sides if necessary).**

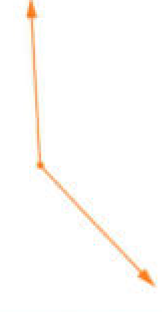
a.


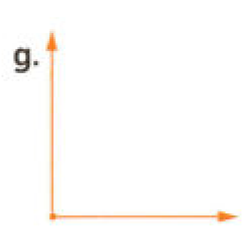
b.


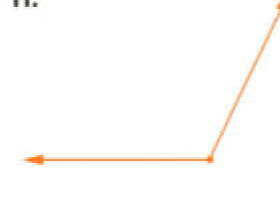
c.


d.


e.


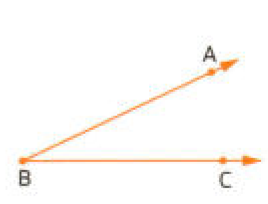
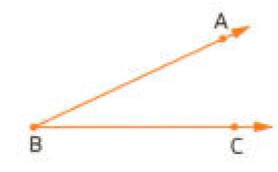
f.


g.


h.


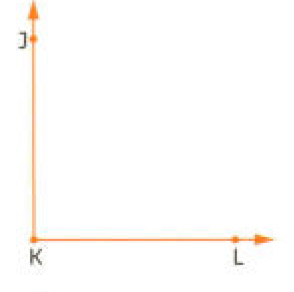
2. **Investigating Protractors.** Write three different names for each angle. When you are finished, investigate how to use the protractor to measure angles.

a. [Assiut 23]

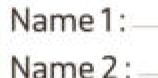
Name 1: ____________
Name 2: ____________
Name 3: ____________

b.



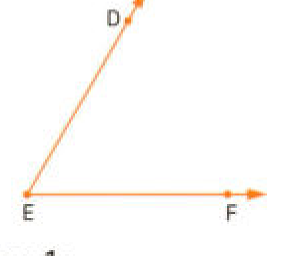

Name 1: ____________
Name 2: ____________
Name 3: ____________

c.



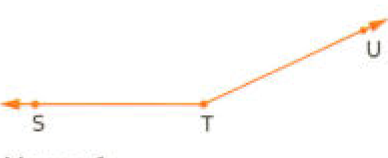

Name 1: ____________
Name 2: ____________
Name 3: ____________

d.



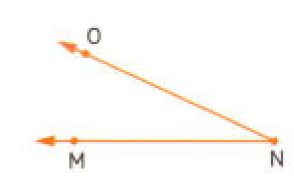
Name 1: ____________
Name 2: ____________
Name 3: ____________

e.




Name 1: ____________
Name 2: ____________
Name 3: ____________

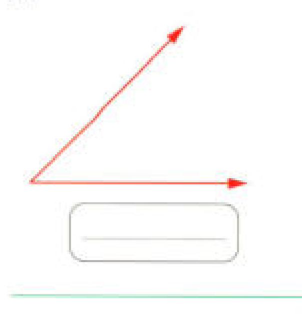
f.



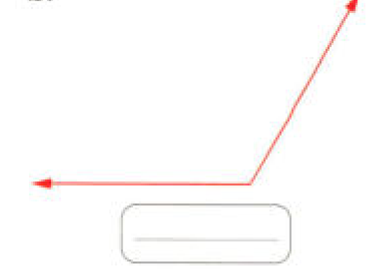
Name 1: ____________
Name 2: ____________
Name 3: ____________

3. Practice using your protractor to measure it. It is helpful to extend the rays to make it easier to measure.

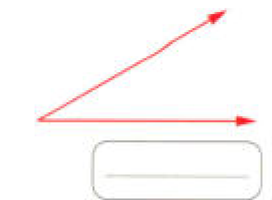
a.



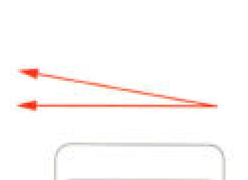
b.



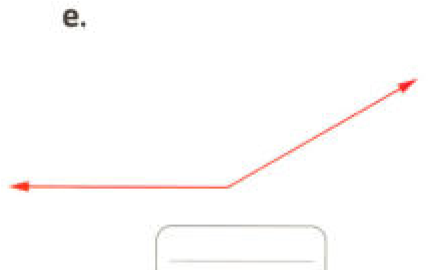
c.



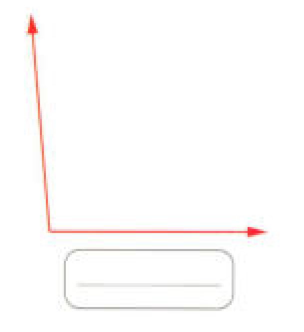
d.



e.

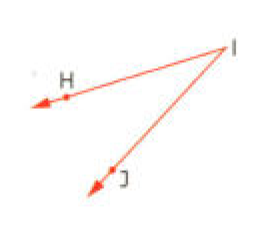


f.

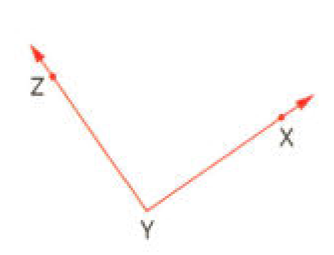


4. Give three different names for each of the following angles. Identify the vertex and sides. Measure the angle using a protractor.

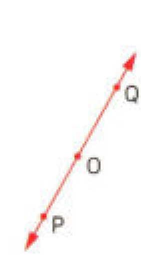
a.



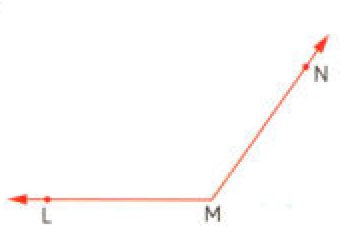
b.



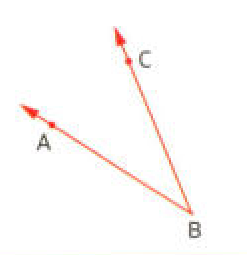
c.



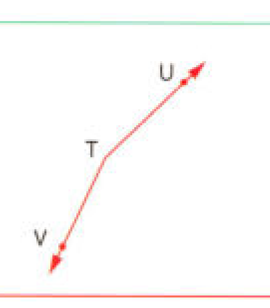
d.



e.

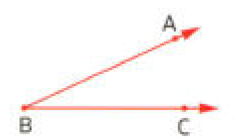


f.



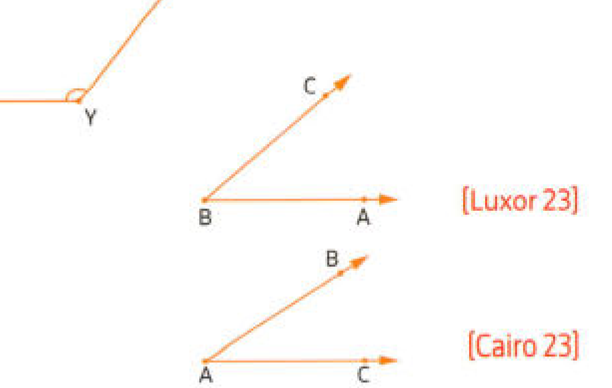
5. Complete.

a. The vertex of opposite angle is ....



[Port Said 23]

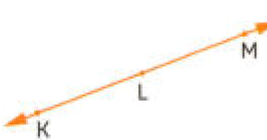
b. The two sides of the opposite angle are .... , ...



c. The name of the opposite angle is .... [Luxor 23]

d. The name of the opposite angle is ∠ .... [Cairo 23]

e. The name of the opposite angle is ∠ ....

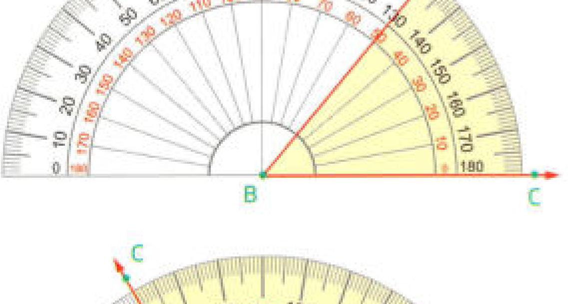


f. The instrument that is used to measure the angles is called ....

6. Answer each of the following questions.



1. Use the opposite angle to answer the questions :



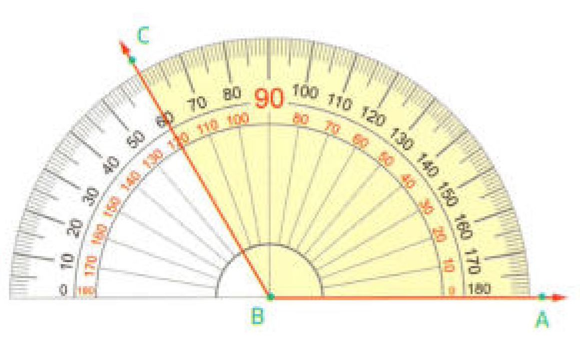
a. Its name is ∠ ....

b. Its type is : ....

c. Its measure = ... ° [Giza 23]



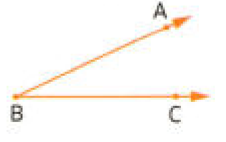
2. In the opposite angle :



a. Its measure is .... °

b. And type is .... angle. [El-Beheira 23]

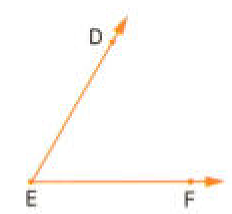
3. In the opposite figure :



a. Name of the angle : ....

b. Angle type : .... [Port Said 23]

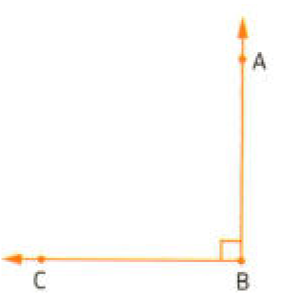
4. a. Name of angle : ∠ ....



b. Type : ....

c. Measure : .... degrees. [Alex. 23]

5. In the opposite figure :



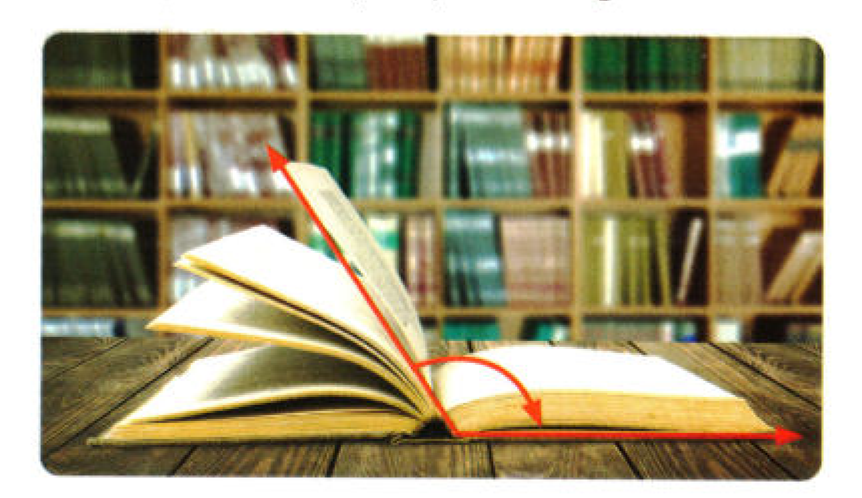
a. The name of the angle is ....

b. The type of the angle is ....

c. The measure of the angle = ... °

(Kafr El-Sheikh 23)

7. **Writing About Math.** Rami notices that the open book on the table in the library creates an angle. He says the angle is about 60 degrees. Do you agree with his estimation? Use words and numbers or pictures to explain your thinking.



Multiple Choice Questions



Choose the correct answer.



1. A protractor is an instrument used for measuring ....
   - A. sides
   - B. angles
   - C. weight
   - D. capacity

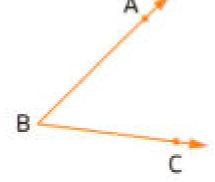
2. The name of the opposite angle is ....
   - A. ∠ ACB
   - B. ∠ ABC
   - C. ∠ BAC
   - D. ∠ CBA

   [Kafr El-Sheikh 23]



3. The vertex of ∠ ABC is .... [Giza 23]
   - A. A
   - B. B
   - C. C
   - D. otherwise

4. Name the sides of the angle ABC ?



   - A. $\overrightarrow{AB}$, $\overrightarrow{BC}$
   - B. $\overrightarrow{BA}$, $\overrightarrow{CB}$
   - C. $\overrightarrow{AC}$, $\overrightarrow{AB}$
   - D. $\overrightarrow{BC}$, $\overrightarrow{BA}$

5. One of sides of the angle RHS is .... [El-Monofia 23]
   - A. $\overrightarrow{HR}$
   - B. $\overrightarrow{RS}$
   - C. $\overrightarrow{SH}$
   - D. $\overrightarrow{RH}$

6. What is the possible measure of the opposite angle ?
   - A. 10°
   - B. 85°
   - C. 90°
   - D. 145°

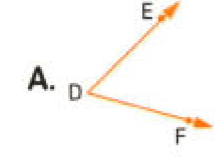
7. The measure of the opposite angle is ....



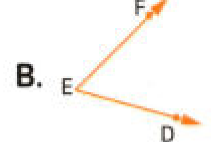
   - A. 100°
   - B. 120°
   - C. 135°
   - D. 150°

8. Which angle is named as angle DEF ? [El-Monofia 23]

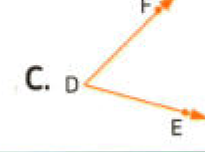
A.



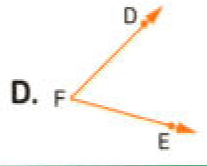
B.



C.

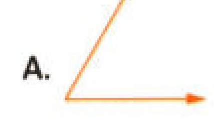


D.

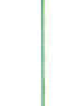


9. Which angle is measured 50° ?

A.



B.



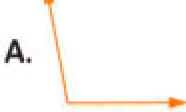
C.

D.



10. Which angle is measured 125° ?

A.



B.



C.

D.

Lessons 5 to 7

Drawing Angles
Drawing Angles with a Protractor
Classifying Triangles Using Geometric Tools



Learn 1 How do you draw an angle with a given measure ?

To draw an angle of measure 70° , follow the instructions :

Step 1

Draw a point [vertex] and use the straight edge of the protractor to draw a ray starting at this point and extending in one direction.

Step 2

Align the point [vertex] with the center mark and line up the ray with the zero line.

Step 3

Determine which scale to use. Think about the type of the angle being drawn and the direction of the ray.

Step 4

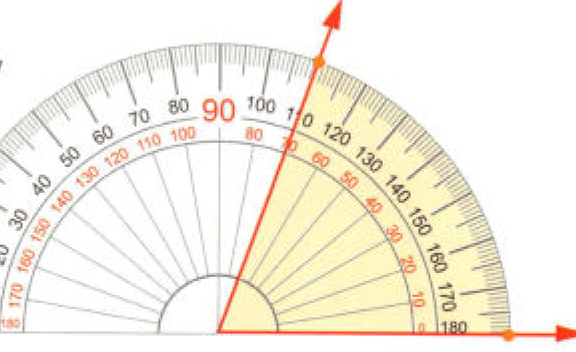
Start with 0° mark. Find the angle measurement and draw a small point at the mark 70°

Step 5

Remove the protractor and use the straight edge to connect the vertex and the point you marked.

Step 6

Look at the angle you drew and decide if the drawing is reasonable.



Notes for parents :

- Remind your child to always identify the type of each angle before draw it as the first thinking step of drawing angles.

Example 1

Use the protractor to draw each of the following angles. Make sure you are using the correct scale.

a. 15°　　b. 47°　　c. 124°　　d. 163°

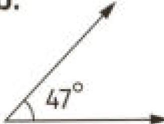
Solution 

Note that : Angles direction may vary

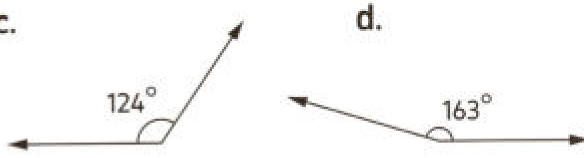
a.



b.



c. d.



Example 2

Use what you know about acute, obtuse, right and straight angles, along with benchmark angles to draw an estimate of each angle.

a. 50°　　b. 80°　　c. 120°　　d. 175°

Solution 



Remember

- Acute angles are less than 90°
- Right angles are measured 90°
- Obtuse angles are greater than 90°
- Straight angles are measured 180°

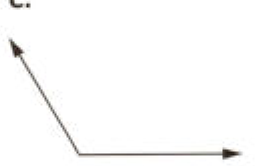
a.



b.



c.



d.

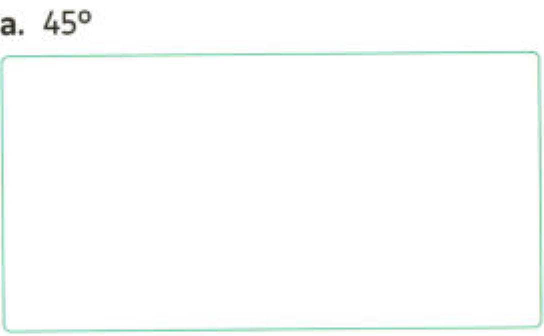




Check your understanding

Use the protractor to draw each of the following angles :

a. 45°



b. 112°



• Give your child more angle measurements and ask him/her to follow the instructions to draw them in the right way.

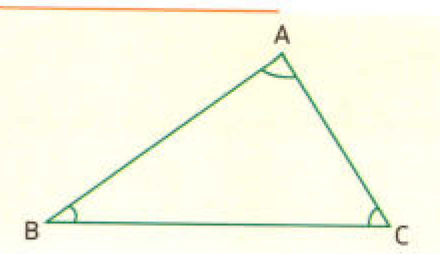
Learn 2 How to classify triangles using a ruler and protractor



Remember

Triangle The triangle is **a polygon** which has **three sides**.

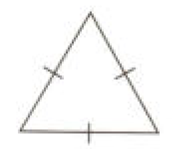
The opposite figure represents a triangle ABC



- Its sides are $\overline{AB}$, $\overline{BC}$ and $\overline{CA}$
- Its vertices are A , B and C
- Its angles are ∠ A , ∠ B and ∠ C

Types of triangles according to the **lengths** of its sides

1. Equilateral triangle



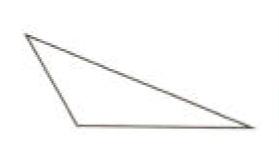
- Its three sides are equal in length.
- Its three angles are equal in measure (60° each).

2. Isosceles triangle



- Two of its sides are equal in length.

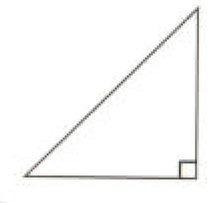
3. Scalene triangle



- Its three sides are different in length.

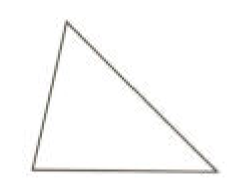
Types of triangles according to the **measures** of its angles

1. Right-angled triangle



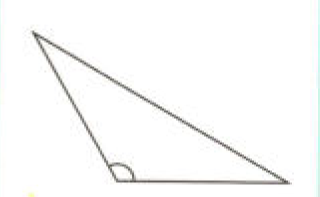
- One of its angles is a right angle.
- Each of the two other angles is an acute angle.

2. Acute-angled triangle



- Each of its three angles is an acute angle.

3. Obtuse-angled triangle



- One of its angles is an obtuse angle.
- Each of the two other angles is an acute angle.

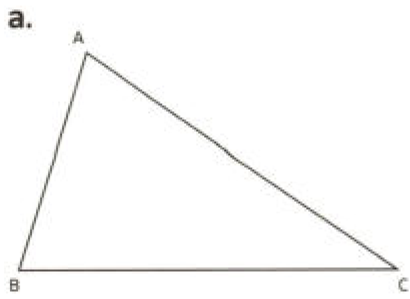
Notes for parents :

- Ask your child can a right triangle also can be an isosceles triangle ? Explain.

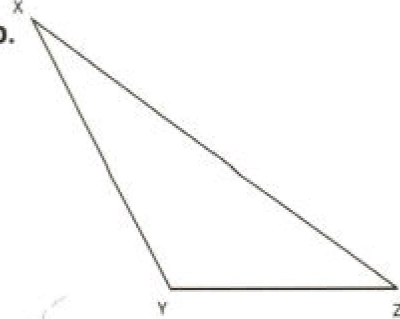
Example 3

Use a ruler to measure the side lengths of each of the following triangles, then determine the type of each triangle according to its sides.

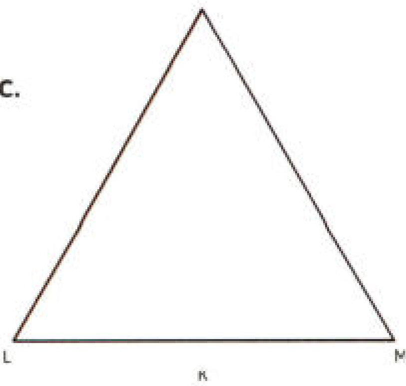
a.



b.



c.



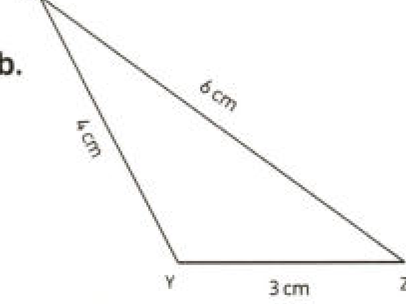
Solution 

a.

A
3 cm
5 cm
B 5 cm C

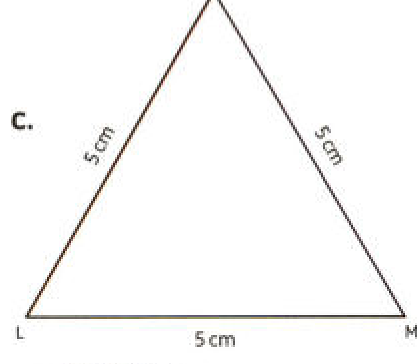
- Δ ABC is an isosceles triangle.

b.



- Δ XYZ is a scalene triangle.

c.

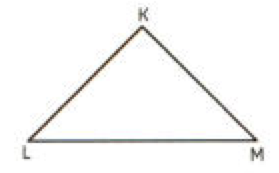


- Δ KLM is an equilateral triangle.

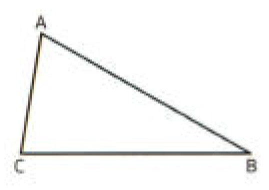
Example 4

Use a protractor to measure the angles of each of the following triangles, then determine the type of triangle according to its angles.

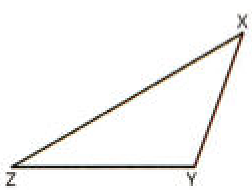
a.



b.

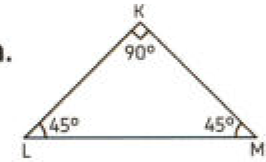


c.



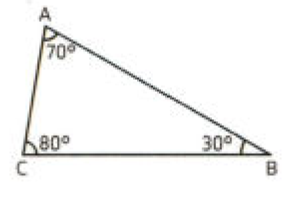
Solution 

a.



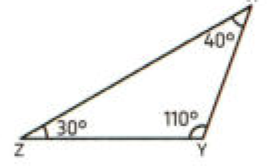
- Δ KLM is a right triangle.

b.



- Δ ABC is an acute triangle.

c.



- Δ XYZ is an obtuse triangle.

- Help your child to use his/her ruler in measuring the length of each side in the triangle.



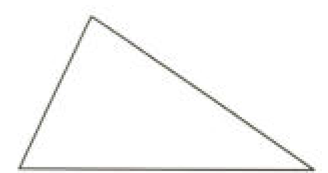
Check your understanding

By using your geometric instrument, determine the type of the triangle according to its sides and angles.

a.



b.



Notes for parents :

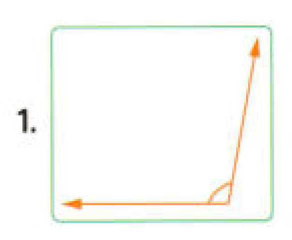
- Help your child to use his/her protractor in measuring each angle in the triangle.

Exercise 25
on lessons 5to7

- Drawing Angles
- Drawing Angles with a Protractor
- Classifying Triangles Using Geometric Tools

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Match each angle to the best estimation.

1. 

2.

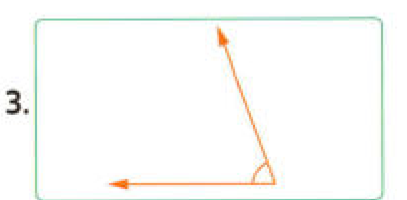
a. 30°

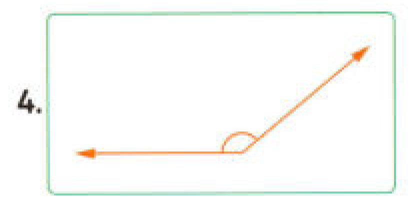
b. 140°

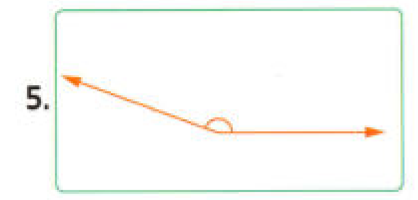
c. 70°

d. 100°

e. 160°

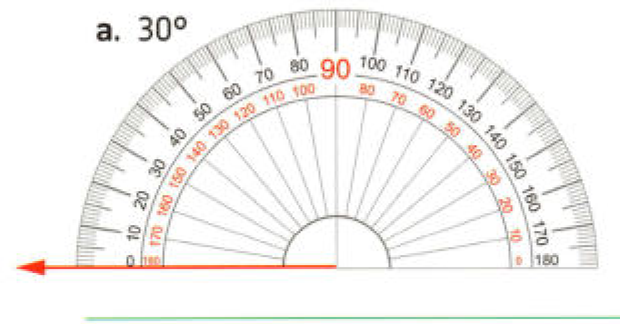
3. 

4. 

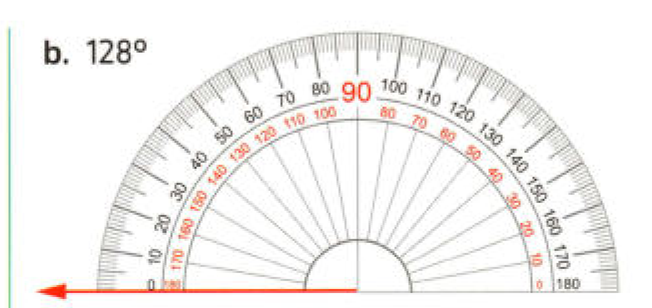
5. 

2. Mark each given angle on the protractor.
[Hint : Make sure you are using the correct scale]

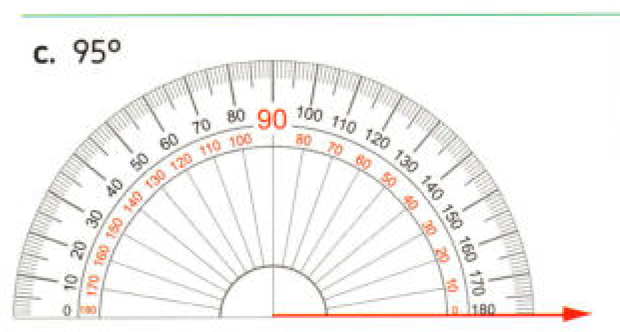
a. 30°



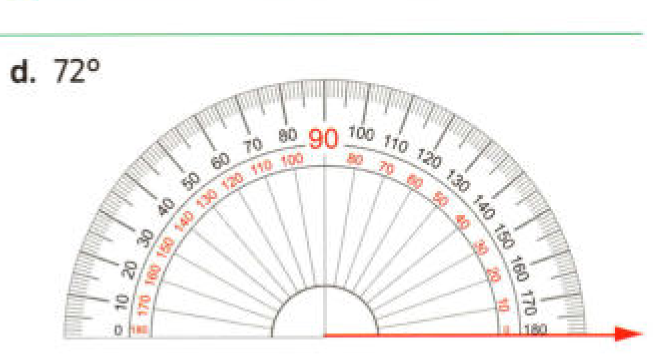
b. 128°



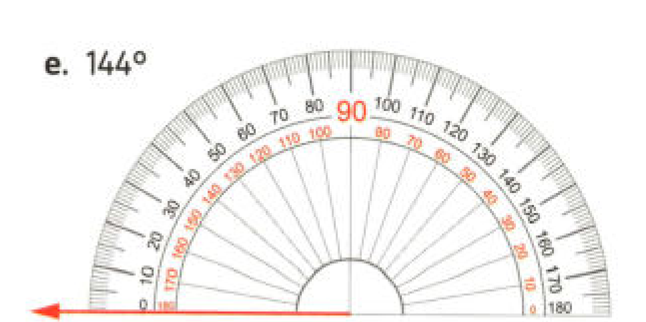
c. 95°



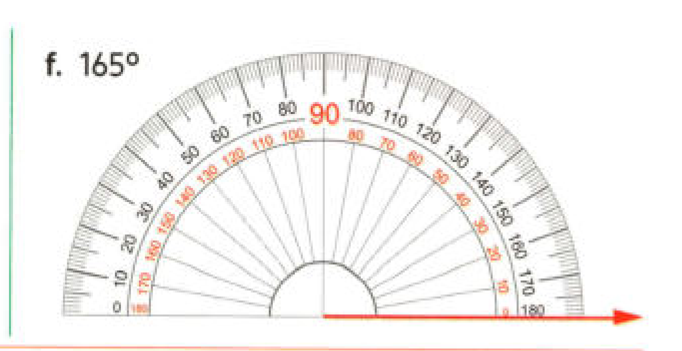
d. 72°



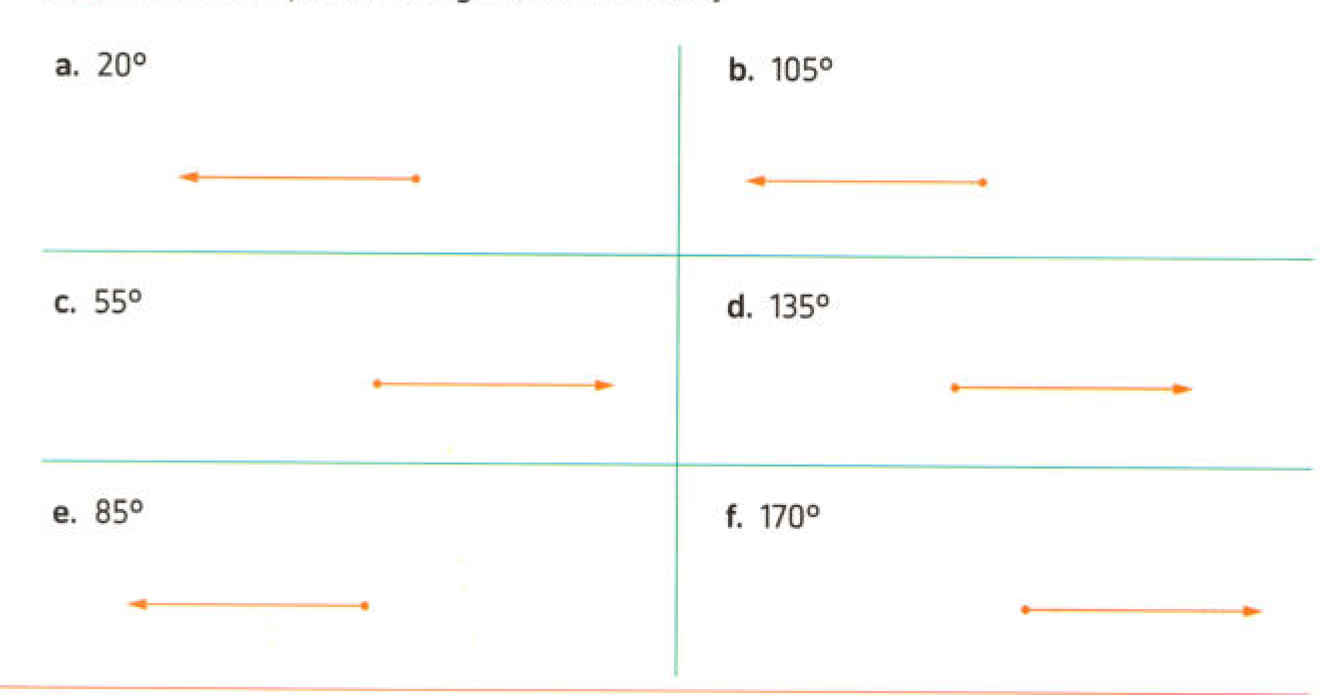
e. 144°



f. 165°



3. Complete drawing the following angles using the protractor.
[Hint : Make sure you are using the correct scale]



a. 20°

b. 105°

c. 55°

d. 135°

e. 85°

f. 170°

4. **Drawing Angle Estimates.** Use what you know about acute, obtuse, right and straight angles, along with benchmark angles to draw an estimate of each angle.

a. 📖 20°	b. 📖 40°	c. 10°	d. 60°
e. 📖 80°	f. 140°	g. 📖 100°	h. 📖 150°
i. 📖 70°	j. 📖 120°	k. 📖 170°	l. 130°

5. **Drawing angles with a protractor.** Use your protractor to draw an angle with the given measurement.

a. 40°	b. 📖 55°	c. 60° [Kafr El-Sheikh 23]	d. 📖 30° [Giza 23]
e. 📖 90° [Giza 23, El-Monofia 23]	f. 📖 145°	g. 📖 110° [Cairo 23]	h. 120°
i. 📖 100° [Alex. 23]	j. 📖 165°	k. 105°	l. 📖 70°

6. Constructing angles. Use your building materials to create an angle of the measurement provided. Next, use your protractor to measure the angle you created to check your work.

a. 60°	b. 30°	c. 90°	d. 140°
e. 105°	f. 165°	g. 125°	h. 80°

7. Drawing more precise angles. Use your protractor to draw each angle. Make sure to notice whether the set of numbers you are using is increasing or decreasing.

a. 58°	b. 27°
c. 94°	d. 148°
e. 106°	f. 172°

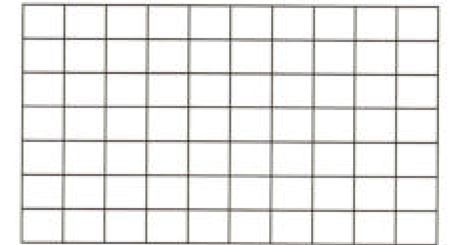
g. 122°

h. 78°

8. Answer each of the following.

a. Use the protractor to draw the following angle

Measure : 90° [El-Monofia 23]



Type : ……………………

b. Draw angle its measure 60° then write its type. [El-Monofia 23]

……………………

c. Draw [∠ ABC] with measure 80°, and write its type. [Cairo 23]

……………………

9. **Writing about Math.** Why is using estimation important when deciding if your angle is reasonable ? What strategies do you use to estimate ? Explain your thinking using words and numbers or pictures.

……………………

……………………

10. **Angles in Ancient Egypt.** The Bent Pyramid of Pharaoh Sneferu was built in Dahshur nearly 5,000 years ago. The walls at the base of the pyramid were built at about a 54° angle. At about 47 meters above the ground, the angle changes to 43°. Use your protractor to draw a 54° angle and a 43° angle. Label each angle with its measurement. Then, name a place where you can see angles in your community.



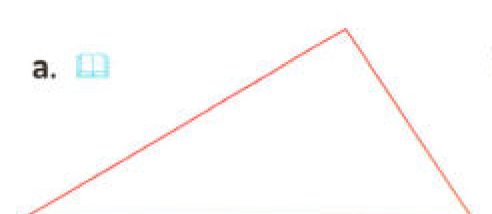
The Bent Pyramid

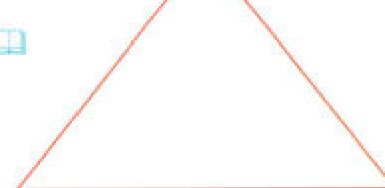
a. 54°

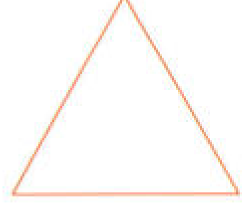
b. 43°

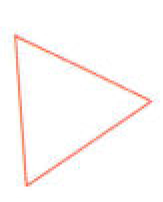


11. Use a ruler to measure the side lengths of each of the following triangles, then determine the type of each triangle according to its sides.

a. 

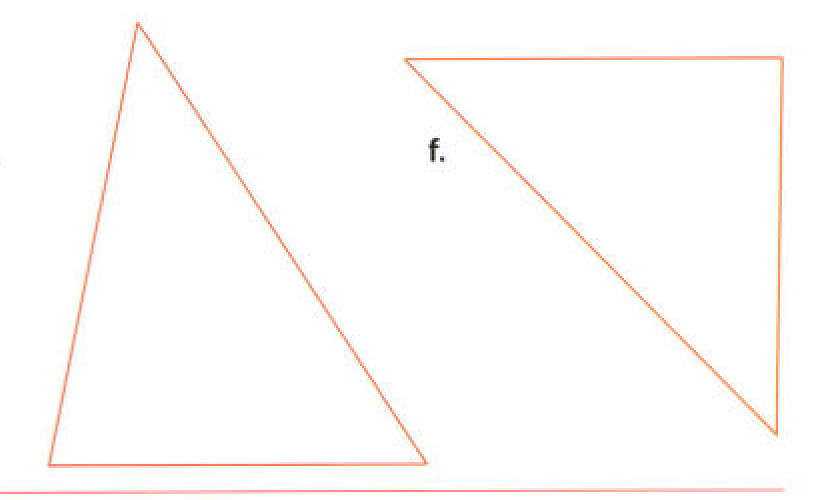
b. 

c. 

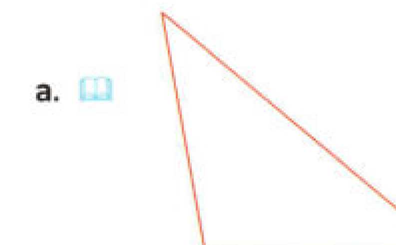
d. 

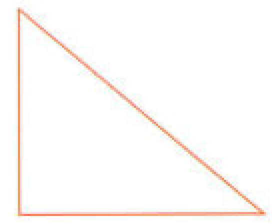
e.

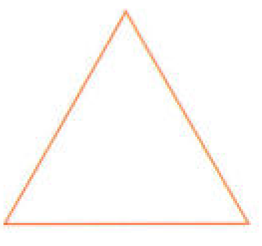
f.

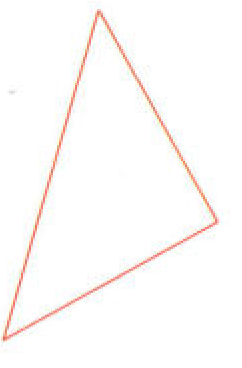


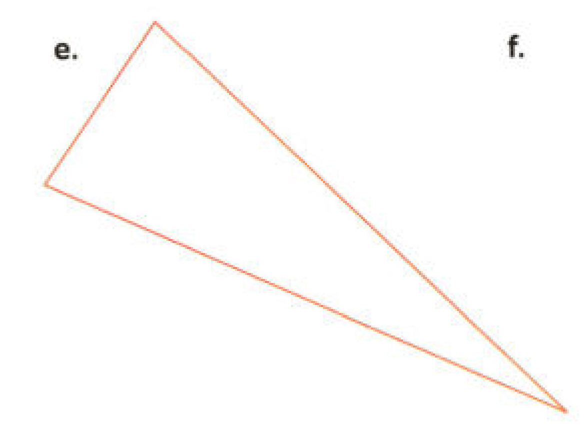
12. Use a protractor to measure the angles of each of the following triangles, then determine the type of each triangle according to its angles.

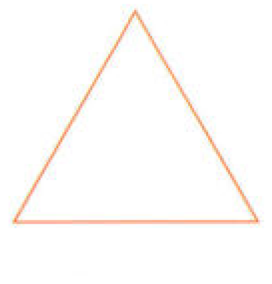
a. 

b. 

c. 

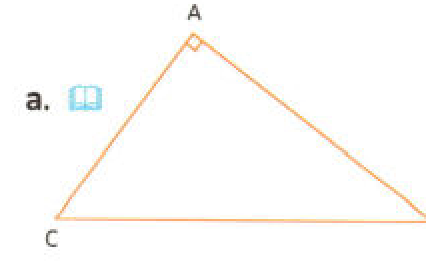
d. 

e. 

f. 

13. Consider the following triangles (using your geometric instrument).

a.



1. Type of Δ ABC with respect to its sides ____________
2. Type of Δ ABC with respect to its angles ____________

b.

X
Z
Y

1. Type of Δ XYZ according to its sides ____________
2. Type of Δ XYZ according to its angles ____________

c.

M
N
L

1. Type of Δ MLN according to its sides ____________
2. Type of Δ MLN according to its angles ____________

d.

D
E
F

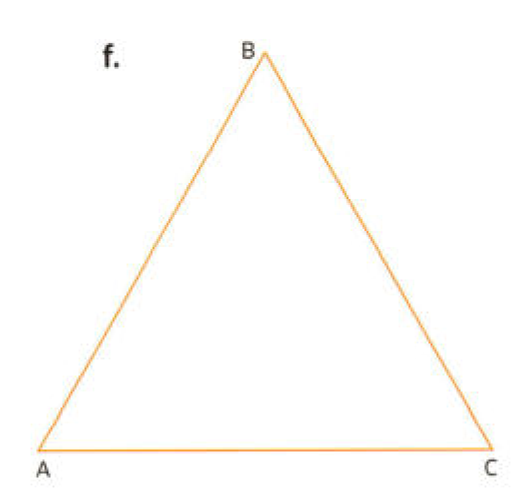
1. Type of Δ DEF according to its sides ____________
2. Type of Δ DEF according to its angles ____________

e.

P
Q
R

1. Type of Δ PQR according to its sides ____________
2. Type of Δ PQR according to its angles ____________

f.



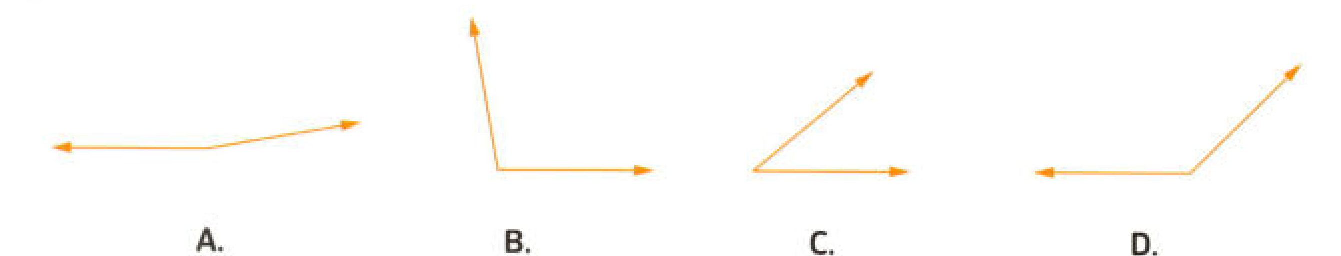
1. Type of Δ ABC according to its sides

2. Type of Δ ABC according to its angles

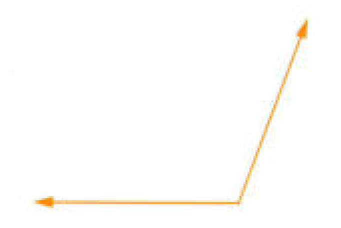
Multiple Choice Questions

Choose the correct answer.

1. Without using protractor, an angle with measure 140° is drawn as ....



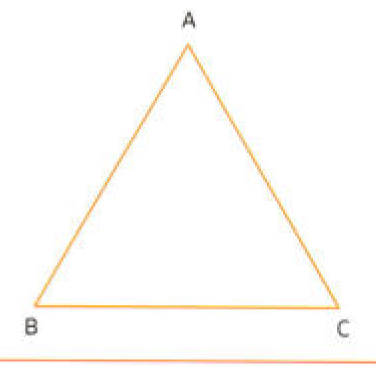
2. The estimate measure of the opposite angle is ....



A. 20° B. 85°
C. 120° D. 170°

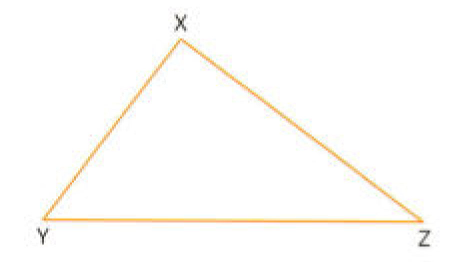
3. The type of the triangle ABC according to its sides is .... triangle.

A. an equilateral B. an isosceles
C. a scalene D. an acute



4. The type of the triangle XYZ according to its angles is .... triangle.

A. an acute B. a right
C. an obtuse D. an isosceles



Unit Thirteen Assessment



1 Choose the correct answer.

1. ________ angle measures 180°

   A. An acute B. A right

   C. An obtuse D. A straight

2. The best measure estimation of the opposite angle is ________

   A. 40° B. 90°

   C. 130° D. 170°

3. The angle of measure 180° represents ________

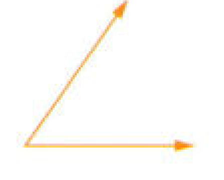


   A. $\frac{1}{4}$ of a full rotation. B. $\frac{1}{2}$ of a full rotation.

   C. $\frac{1}{3}$ of a full rotation. D. $\frac{3}{4}$ of a full rotation.

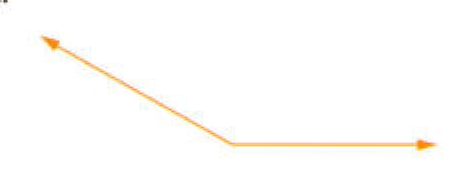
4. Which angle is measured 125° ?

   A.



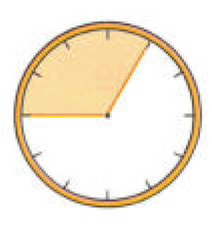
   B.

   C.



   D.

5. The fraction which represents the colored part equals ________



   A. $\frac{1}{3}$ B. $\frac{2}{3}$

   C. $\frac{1}{4}$ D. $\frac{5}{6}$

6. ________ angle measures between 0° and 90°.

   A. An acute B. A right

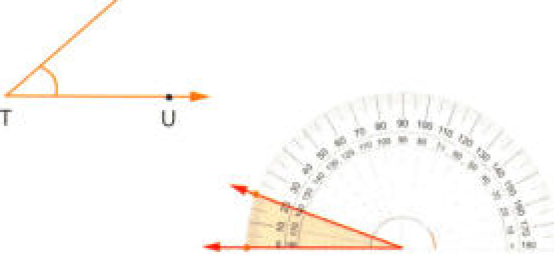
   C. An obtuse D. A straight

7. The measure of the straight angle is ________ °

   A. 90 B. 100 C. 150 D. 180

2 **Complete.**

1. The two sides of the opposite angle are .... and ....
2. An obtuse angle measures between .... and ....
3. The fraction $\frac{1}{4}$ represents in the circle an angle of measure = ...° [El-Beheira 23]
4. The opposite angle named as ...., ... and ....



5. The measure of the opposite angle = ...



[Kafr El-Sheikh 23]

6. The angle of the shaded part of the model = ... [Port Said 23]
7. A right angle measured ....°.
8. There are .... degrees in a circle.

3 **Choose the correct answer.**

1. The measure of the colored angle of the opposite model is ....°



   A. 90 B. 120 C. 150 D. 180
2. The opposite angle is named as angle ....
   A. ABC B. BCA
   C. CAB D. CBA
3. The measure of the acute angle is less than 90° and greater than ....°
   A. zero B. 90 C. 180 D. 360
4. The measure of the opposite angle is ....°
   A. 75 B. 105
   C. 55 D. 95
5. .... angle is $\frac{1}{4}$ of the circle.
   A. An acute B. An obtuse C. A right D. A straight

6. The related fraction to the angle of measure 120° is ______

A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$

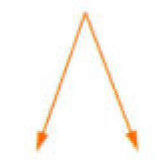
7. The straight angle is the same as ______ right angles.

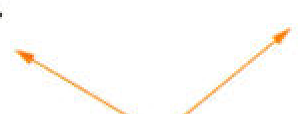
A. 1 B. 2 C. 3 D. 4

4 Answer the following questions.

1. Draw $\angle$ ABC with measure of 127° and classify it by its type.

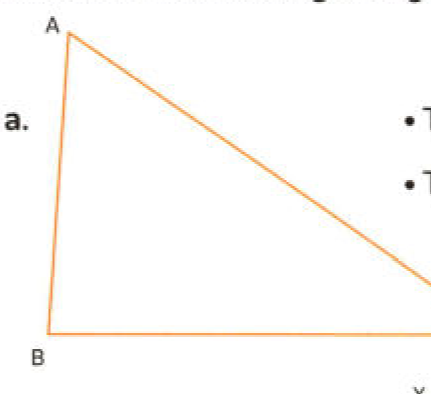
2. Measure each of the following angles, then classify each angle by its type.

a. 

b. 

c. 

3. **Consider the following triangles (using your geometric instrument).**

a. 

- Type of Δ ABC with respect to its sides ______
- Type of Δ ABC with respect to its angles ______

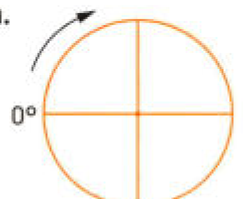
X

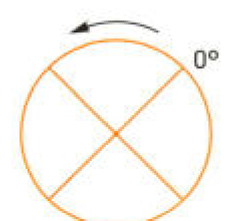
b.

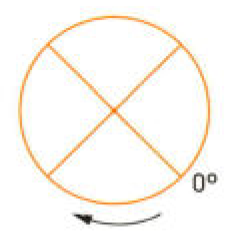
- Type of Δ XYZ with respect to its sides ______
- Type of Δ XYZ with respect to its angles ______

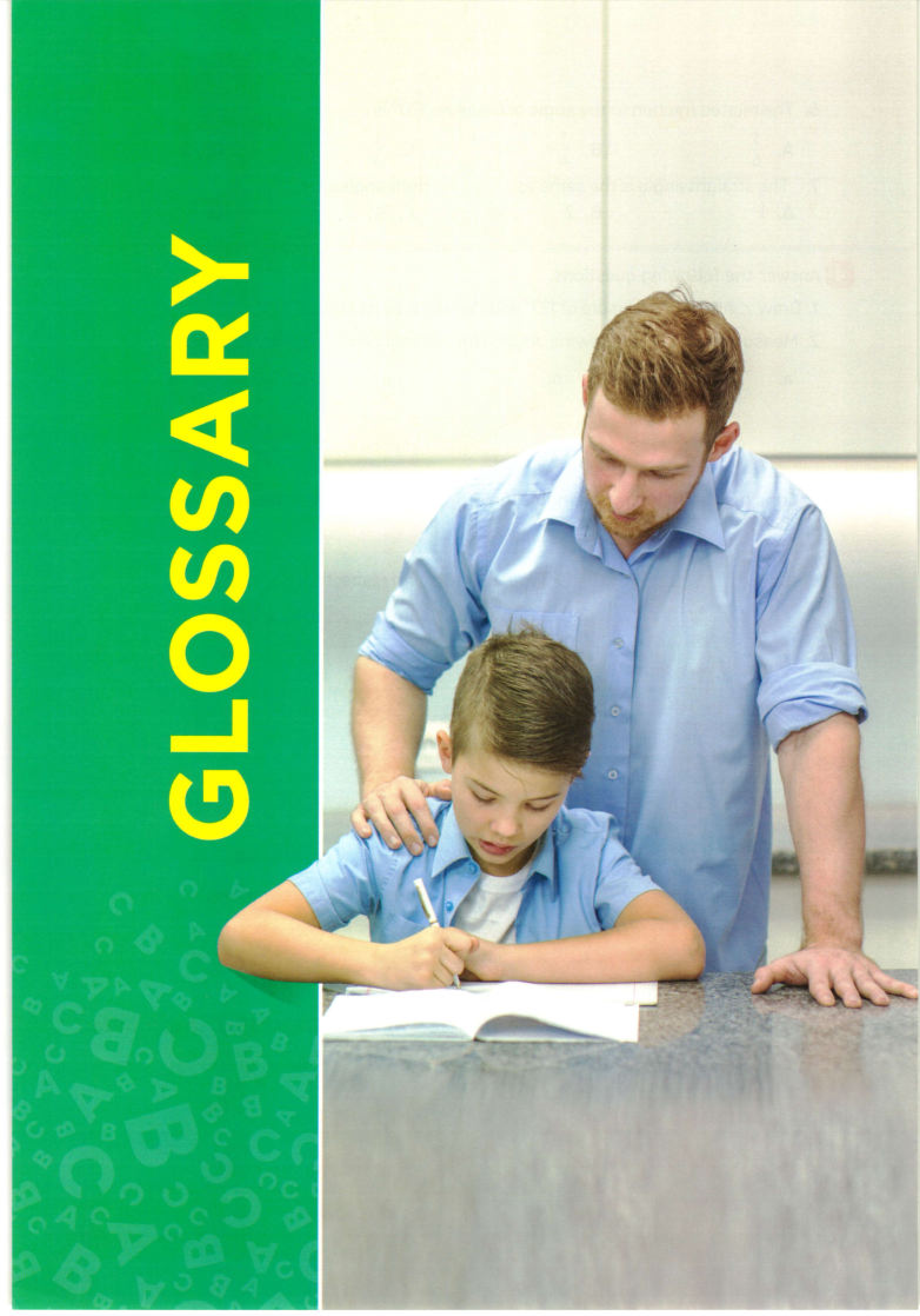
Z Y

4. Move from 0° in the given direction. Then label 90°, 180°, 270° and 360° on each circle.

a. 

b. 

c. 


GLOSSARY

A

acute angle زاوية حادة
An angle with a measure less than 90°.

acute triangle مثلث حاد الزوايا
A triangle with no angle measuring 90° or more.

add يجمع
To combine or join together; put together two or more quantities.

analyze يحلل
To study or examine something in detail.

angle زاوية
Two rays that share an endpoint.

angle measure قياس الزاوية
It tells how far one side is turned from the other side.

B

bar model نموذج شريطي
A model that uses bars to represent known and unknown quantities and the relationship between these quantities.

benchmark fractions كسور معيارية
Fractions that are commonly used for estimation. A benchmark fractions helps you compare two fractions.
One-half, one-third, one fourth, three-fourths, and two-thirds are all benchmark fractions.

C

centimeter (cm) سنتيمتر (سم)
A metric unit of length equal to 0.01 $(\frac{1}{100})$ of a meter.

circle دائرة
A plane figure with all points at the same distance from a fixed point called a center.

classify يُصنف
To sort into categories or to arrange into groups by attributes.

clockwise مع اتجاه عقارب الساعة
The same direction in which the hands on a clock move.

common denominator مقام مشترك
For two or more fractions, a common denominator is a common multiple of the denominators. Three-fourths and two-fourths have four as a common denominator.

common numerator بسط مشترك
For two or more fractions, a common nomerator is a common multiple of the numerators.

compare يقارن
To decide if one number is greater than, less than, or equal to.

compose يكوّن
To put together smaller numbers to make larger numbers.

congruent مطابق
Having exactly the same size and shape.

counterclockwise في عكس اتجاه عقارب الساعة
The opposite direction from the direction that the hands move on a clock.



data بيانات
A collection of information gathered for a purpose. Data may be in the form of either words or numbers.

decimal كسر عشري
A number with one or more digits to the right of a decimal point. In 7.46, forty-six hundredths is the decimal or fraction of the whole.

decimal fraction كسر عشري
A fractional number with a denominator of 10 or a power of 10. It can be written with a decimal point.

decimal notation صيغة عشرية
Uses digits 0-9 and a decimal point.
For example : 23.56 is in decimal notation.

decimal point علامة عشرية
A dot [.] separating the whole number from the fractions [parts] in decimal notation.

decimeter [dm] ديسيمتر [ديسم]
A metric unit of length. 1 decimeter = 0.1 meter; 10 decimeters = 1 meter. A hand span is about 1 decimeter.

decompose يحلل
To separate a number into two or more parts.

degree [angle measure] درجة [وحدة قياس الزاوية]
A unit for measuring angles. It is based on dividing one complete circle into 360 equal parts. A one degree angle = $\frac{1}{360}$ of a circle.

denominator مقام
The quantity below the line in a fraction. It tells how many equal parts are in the whole.

diagonal قطر
A line that goes through two vertices of a polygon that are not next to each other.

difference فرق
The amount that remains after one quantity is subtracted from another. The answer in a subtraction problem.



E

equal يساوى
Having the same value.

endpoint نقطة نهاية
A point at either end of a line segment, or a point at one end of a ray.

equivalent decimals كسور عشرية متكافئة
Decimals that have the same value. 0.7 = 0.70

equivalent fractions كسور متكافئة
Fractions that have the same value. $\frac{1}{2} = \frac{2}{4}$

estimate يُقدِّر
To find a number close to an exact amount; an estimate tells about how much or about how many.

expanded form صيغة ممتدة
A way to write numbers that shows the value of each digit. 263 = 200 + 60 + 3

F

fraction كسر
A way to describe a part of a whole or a part of a group by using equal parts.

G

greater than [>] أكبر من
Used to compare two numbers when the first number is larger than the second number.

H

hexagon الشكل السداسى
A polygon with six sides.

horizontal أفقى
Parallel to the horizon. Horizontal lines go from left to right or right to left.

Hundreds مئات
The value of a digit that is the third position from the right when describing whole number place value.

hundredth جزء من مائة
One of the equal parts when a whole is divided into 100 equal parts.

Hundredths أجزاء من المائة
In the decimal numeration system, Hundredths is the name of the next place to the right of Tenths.

I

identify يحدد
Recognize or distinguish, figure out what it is, name it.

interpret يفسر
To explain or tell the meaning of something.

intersecting lines خطوط متقاطعة
Lines that cross at a point

improper fraction كسر غير اعتيادي
A fraction with a numerator greater than or equal to the denominator. $\frac{6}{5}$

J

justify يبرر
To show or prove to be right or reasonable.

K

kilogram (kg) كيلوجرام (كجم)
A metric unit of mass equal to 1,000 grams.

kilometer (km) كيلومتر (كم)
A metric unit of length equal to 1,000 meters.

L

length طول
How long something is. The distance from one point to another. Length is measured in units such as centimeters, meters, and kilometers. One dimension of a 2-dimensional or 3-dimensional figure.

less than (<) أقل من
Used to compare two numbers when the first number is smaller than the second number.

like denominators متحدة المقام
Denominators in two or more fractions that are the same.

like numerators متحدة البسط
Numerators in two or more fractions that are the same.

line خط
A set of connected points continuing without end in both directions.

line of symmetry خط التماثل
A line that divides a figure into two congruent halves that are mirror images of each other.

line plot مخطط التمثيل بالنقاط
A diagram showing frequency of data on a number line.

line segment قطعة مستقيمة
A part of a line with two endpoints.

M

meter (m) متر (م)
A standard unit of length in the metric system.

mixed number عدد كسري
A number that is made up of a whole number and a proper fraction.

model or visual model نموذج أو نموذج مرئي
A picture or representation of a solution, a number, or a concept.

multiply يضرب
The operation of repeated addition of the same number. $3 \times 5 = 5 + 5 + 5$



number line خط الأعداد
A diagram that represents numbers as points on a line.

numerator بسط
The number written above the line in a fraction. It tells how many equal parts are described in the fraction.

O

obtuse angle زاوية منفرجة
An angle with a measure greater that 90° but less than 180°.

obtuse triangle مثلث منفرج الزاوية
A triangle that contains one angle with a measure greater than 90° (obtuse angle) and two acute angles.

Ones آحاد
The value of a digit that is farthest to the right when describing whole number place value.

order يرتب / ترتيب
A sequence or arrangement of things.



parallel lines خطوط متوازية
Lines that are always the same distance apart. They do not intersect.

parallelogram متوازى أضلاع
A quadrilateral with two pairs of parallel and congruent sides.

perimeter محيط
The distance around the outside of a figure.

perpendicular lines خطوط متعامدة
Two intersecting lines that form right angles.

place value قيمة مكانية
The value of the place of a digit in a number.

plane figure شكل مستوى
A two-dimensional figure.

point نقطة
The exact location in space, represented by a dot.

polygon مضلع
A closed two-dimensional shape with 3 or more sides.

product ناتج الضرب
The answer to a multiplication problem.
In $6 \times 7 = 42$, 42 is the product, or answer.

proper fraction كسر اعتيادى اقل من ١
A fraction with numerator less than the denominator. $\frac{5}{6}$

protractor منقلة
A tool used to measure and draw angles.

Q

quadrilateral شكل رباعى
A polygon with four sides.

R

recognize يدرك
Identify (someone or something) from having encountered them before; know again, remember.

rectangle مستطيل
A quadrilateral with two pairs of congruent, parallel sides and four equal angles.

regular polygon مضلع منتظم
A polygon with all sides the same length and all angles the same measure.

represent يعرض/يمثل
To show or model.

rhombus معين
A quadrilateral with all four sides equal in length.

right angle زاوية قائمة
An angle that measures exactly 90°.

right triangle مثلث قائم الزاوية
A triangle that has one 90° angle.

S

simplest form أبسط صورة
When a fraction is expressed with the fewest possible pieces, it is in simplest form (also known as lowest terms).

simplify يبسط
To express a fraction in simplest form.

square مربع
A parallelogram with four equal angles and four equal sides.

straight angle زاوية مستقيمة
An angle that measures exactly 180°.

standard form صيغة قياسية
A common or usual way of writing a number using digits. 12,376 is in standard form.

subtract يطرح
An operation that gives the difference between two numbers. Subtraction can be used to compare two numbers, or to find out how much is left after some is taken away.

sum مجموع
The answer to an addition problem.

symmetrical figures اشكال متماثلة
Figures that can be folded in half and its two parts match exactly.



T

Tens عشرات

The value of a digit that is the second position from the right when describing whole number place value.

tenth جزء من عشرة

One of the equal parts when a whole is divided into 10 equal parts.

Tenths أجزاء من عشرة

In the decimal numeration, tenths is the name of the place to the right of the decimal point.

trapezium شبه منحرف

A quadrilateral with one pair of parallel sides and one pair of sides that are not parallel.

triangle مثلث

A polygon with three sides and three angles.

two-dimensional ثنائي الأبعاد

Having length and width.



U

unit fraction كسر الوحدة

A fraction that has 1 as its numerator. A unit fraction names 1 equal part of a whole.

unlike denominators غير متحدة المقام

Bottom numbers of a fraction that are not equal.

unlike numerators غير متحدة البسط

Top numbers of a fraction that are not equal.



V

vertex [plural: vertices] رأس [رؤوس]

The point at which two line segments, lines, or rays meet to form an angle.

vertical رأسي

Perpendicular to the horizon. Vertical lines go up and down.



W

width عرض

One dimension of a 2-dimensional or 3-dimensional figur.

whole كامل

All of an object, a group of objects, shape or quantity.

whole numbers أعداد صحيحة

The numbers 0, 1, 2, 3 and so on, without fractions or decimals.

word form صيغة لفظية

A way of using words to write a number. The word form of 12,345 is twelve thousand, three hundred forty-five.



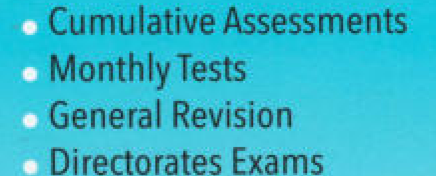
Mathematics

By a group of supervisors

STEP BY STEP REVISION

FREE PART

1

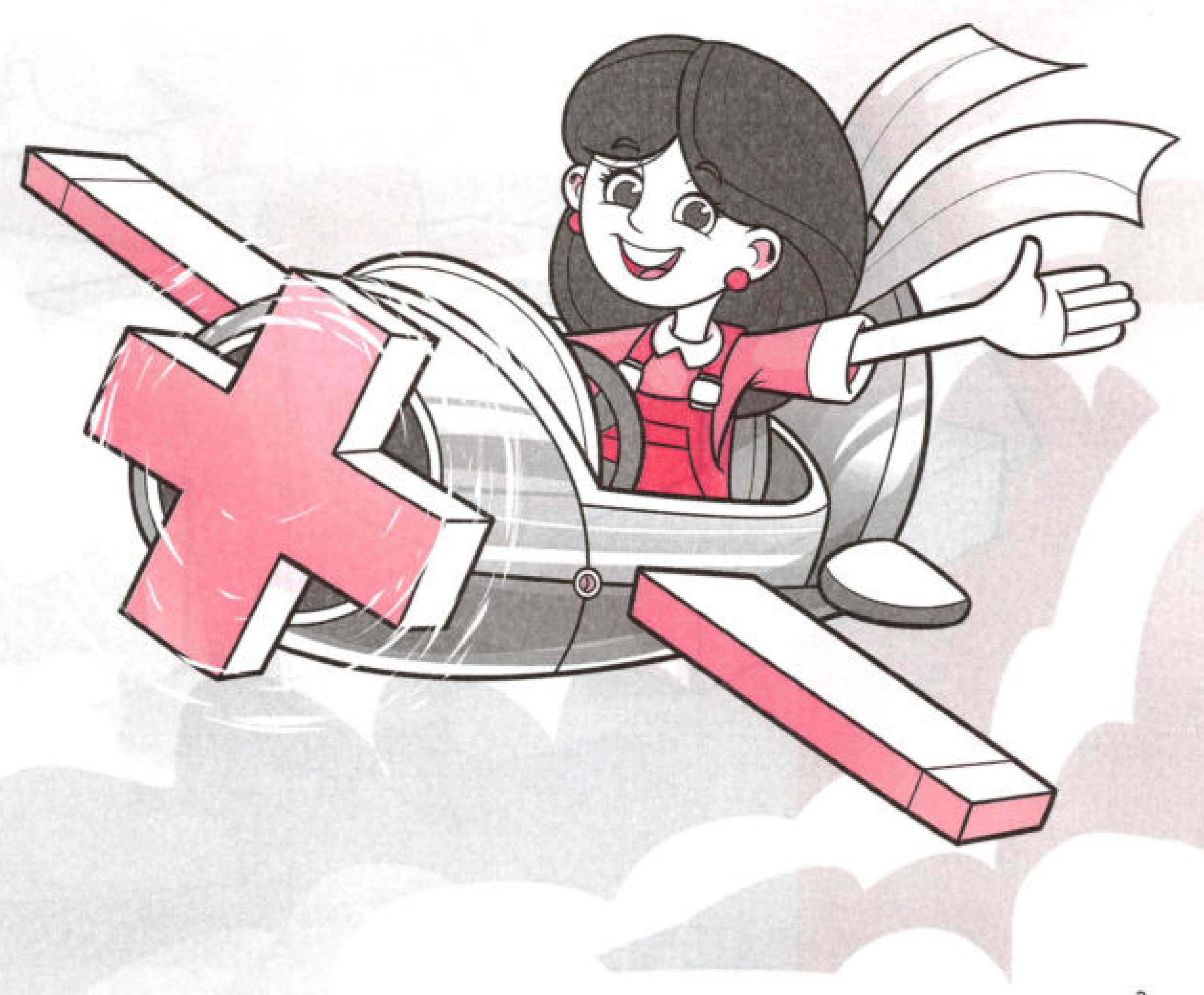


SECOND TERM

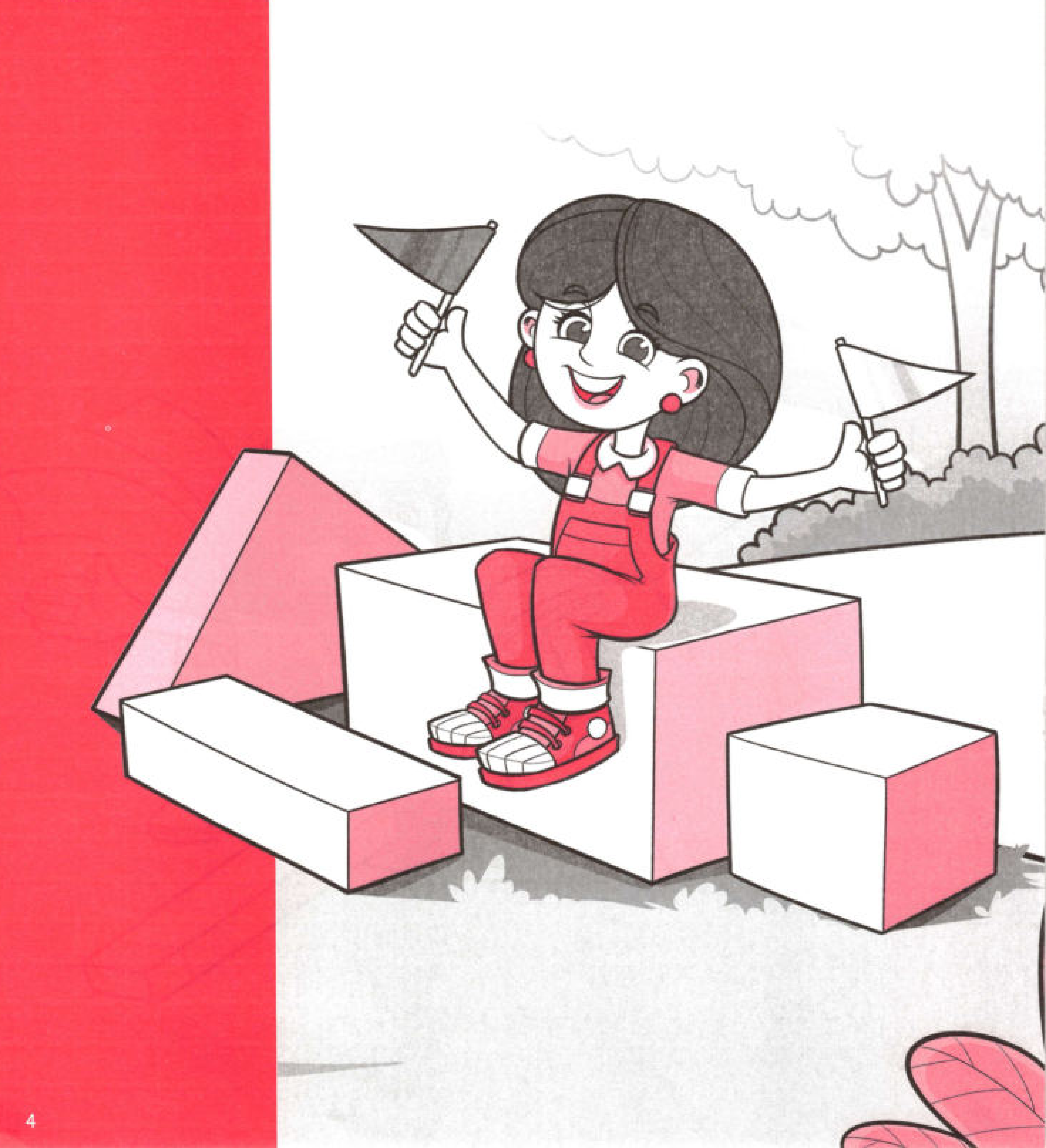
4th PRIMARY

2024

Contents



Cumulative Assessments



Cumulative Assessments on UNIT 9

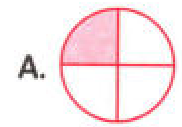
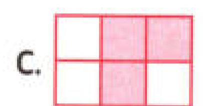
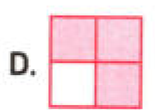
Cumulative Assessment  On lessons (1 to 3) unit 9

1. Choose the correct answer.

a. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=$ ....

A. $\frac{2}{7}$ B. $\frac{3}{7}$ C. $\frac{4}{7}$ D. $\frac{5}{7}$

b. The model which represents $\frac{3}{4}$ is ....

A.  B. C.  D. 

c. Which of the following is not a unit fraction ?

A. $\frac{1}{3}$ B. $\frac{2}{7}$ C. $\frac{1}{5}$ D. $\frac{1}{4}$

d. $1=$ ....

A. $\frac{5}{7}$ B. $\frac{7}{7}$ C. $\frac{1}{2}$ D. $\frac{1}{10}$

2. Decompose the following proper fractions in two ways.

	First way	Second way
a.	$\frac{3}{4}=$	$\frac{3}{4}=$ ....
b.	$\frac{4}{5}=$	$\frac{4}{5}=$ ....

3. Complete.

a. $\frac{3}{5}=\frac{2}{5}+$ ....

b. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=$ ....

c. $\frac{\square}{3}=1$

d. Three eighths = ... + ... + ...

e. $\frac{1}{6}+\frac{2}{6}+$ .... $=1$

f. Three quarters = ...

4. Draw a model that represents one way of decomposing the following fractions.

a. $\frac{2}{3}$

b. $\frac{4}{7}$

Cumulative Assessment 2 Till lesson 4 unit 9

1. Complete.

a. $\frac{5}{3} =$ ______ (as a mixed number)

b. $4\frac{1}{5} =$ ______ (as an improper fraction)

c. $\frac{5}{8} = \frac{1}{8} + \frac{3}{8} +$ ______

d. $\frac{2}{7} + \frac{3}{7} + \frac{1}{7} =$ ______

e. $\frac{—}{5} = 2$

f. $\frac{9}{—} = 1$

2. Choose the correct answer.

a. Which of the following is a mixed number ?

A. $\frac{3}{5}$ B. $\frac{4}{3}$ C. $3\frac{1}{2}$ D. $\frac{1}{4}$

b. $7\frac{1}{5} =$ ______

A. $\frac{36}{5}$ B. $\frac{35}{3}$ C. $\frac{13}{5}$ D. $\frac{35}{7}$

c. $\frac{2}{3}$ is ______

A. a unit fraction
B. a mixed number
C. an improper fraction
D. a proper fraction

d. Which of the following has the same value as $\frac{5}{7}$?

A. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

B. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

C. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

D. $\frac{1}{7}+\frac{2}{7}+\frac{3}{7}+\frac{4}{7}+\frac{5}{7}$

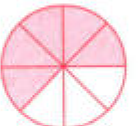
e. $\frac{6}{—} = 2$

A. 1 B. 2 C. 3 D. 4

f. $\frac{5}{2}$ is ______

A. a unit fraction
B. a mixed number
C. an improper fraction
D. a proper fraction

3. Write the opposite fraction in the form of an improper fraction and a mixed number.

Improper fraction : ______

Mixed number : ______

4. Write each mixed number as an improper fraction.

a. $5\frac{7}{8}$ b. $3\frac{2}{7}$ c. $2\frac{5}{9}$

5. Write each improper fraction as a mixed number.

a. $\frac{7}{3}$ b. $\frac{18}{5}$ c. $\frac{27}{4}$

Cumulative Assessment 3 Till lessons (5 to 7) unit 9

1. Complete.

a. $7\frac{5}{7} - ______ = 3\frac{1}{7}$

b. $______ - 4\frac{1}{3} = 3\frac{2}{3}$

c. $8\frac{5}{6} + ______ = 9$

d. $1 = \frac{__}{7}$

e. $\frac{8}{__} = 2$

f. $4\frac{2}{3} = \frac{__}{3}$

2. Choose the correct answer.

a. $3 + \frac{2}{5} + 1 + \frac{1}{5} = ______$

A. $2\frac{3}{5}$ B. $4\frac{3}{5}$ C. $2\frac{1}{5}$ D. $\frac{7}{5}$

b. $7\frac{4}{7} - 3\frac{3}{7} = ______$

A. $10\frac{1}{7}$ B. $4\frac{7}{7}$ C. $4\frac{1}{7}$ D. 4

c. Which one of the following statements is true ?

A. $\frac{3}{7} + \frac{1}{7} = \frac{4}{14}$

B. $2\frac{1}{5} + 1\frac{2}{5} = 3\frac{3}{5}$

C. $3\frac{1}{2} = \frac{6}{2}$

D. $3\frac{2}{4} - 1\frac{1}{4} = 2\frac{3}{4}$

d. Which of the following is an improper fraction ?

A. $\frac{3}{7}$ B. $\frac{1}{4}$ C. $2\frac{1}{5}$ D. $\frac{7}{3}$

e. $\frac{3}{7} + ______ + \frac{1}{7} = \frac{5}{7}$

A. $\frac{1}{7}$ B. $\frac{2}{7}$ C. $\frac{3}{7}$ D. $\frac{4}{7}$

3. Solve each of the following. You may draw models to help.

a. $4\frac{2}{5} + 3\frac{3}{5} = ______$

b. $4\frac{4}{7} - 2\frac{2}{7} = ______$

c. $4 - 2\frac{1}{4} = ______$

d. $1 + 2 + \frac{3}{8} + \frac{4}{8} + \frac{3}{8} = ______$

e. $1 - \frac{2}{9} - \frac{4}{9} = ______$

f. $\frac{4}{5} + 2\frac{1}{5} = ______$

4. Petra has $5\frac{3}{4}$ cakes , she gave $3\frac{1}{4}$ to her brother. How many cakes left does she has ?

____

Cumulative Assessment 4 Till lesson 8 unit 9

1. Choose the correct answer.

a. Which of the following fractions is the greatest ?

A. $\frac{2}{5}$ B. $\frac{2}{7}$ C. $\frac{2}{3}$ D. $\frac{2}{9}$

b. $\frac{3}{8} >$ ....

A. $\frac{5}{8}$ B. $\frac{3}{7}$ C. $\frac{3}{9}$ D. $\frac{7}{8}$

c. $3\frac{1}{4} =$ .... (as an improper fraction)

A. $\frac{13}{3}$ B. $\frac{13}{4}$ C. $\frac{12}{4}$ D. $\frac{8}{4}$

d. .... $< \frac{5}{9}$

A. $\frac{5}{8}$ B. $\frac{5}{7}$ C. $\frac{6}{9}$ D. $\frac{5}{10}$

e. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ....

A. $\frac{3}{5}$ B. $\frac{3}{15}$ C. $\frac{1}{15}$ D. $\frac{3}{25}$

2. Complete.

a. .... $- 3\frac{1}{3} = 1\frac{1}{3}$

b. $4\frac{4}{5} -$ .... $= 1\frac{1}{5}$

c. $3\frac{2}{5} +$ .... $= 4\frac{3}{5}$

d. .... $+ 1\frac{1}{7} = 2$

e. $\frac{\dots}{7} = 1$

f. $\frac{\dots}{3} = 5$

g. $\frac{4}{5} = \frac{3}{5} +$ ....

h. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ ....

i. Two fifths = ...

j. $\frac{9}{5} =$ .... (as a mixed number)

3. Solve the problems.

a. $2\frac{3}{5} + 1\frac{4}{5} =$ ....

b. $6\frac{4}{7} - 3\frac{3}{7} =$ ....

c. $\frac{3}{9} + \frac{6}{9} =$ ....

d. $3 - 1\frac{5}{8} =$ ....

4. a. Order the following fractions in an ascending order.

$\frac{7}{10}$, $\frac{3}{10}$, $\frac{1}{10}$, $\frac{9}{10}$, $\frac{6}{10}$

b. Order the following fractions in a descending order.

$\frac{11}{7}$, $\frac{11}{3}$, $\frac{11}{5}$, $\frac{11}{8}$, $\frac{11}{4}$

Cumulative Assessment 5 Till lesson 9 unit 9

1. Choose the correct answer.

a. Which of the following is a unit fraction ?

A. $\frac{3}{7}$ B. $\frac{2}{5}$ C. $\frac{3}{8}$ D. $\frac{1}{10}$

b. $\frac{3}{__} = 1$

A. 1 B. 2 C. 3 D. 10

c. $\frac{19}{4} =$ .... (as a mixed number)

A. $4\frac{3}{4}$ B. $4\frac{1}{4}$ C. $5\frac{1}{4}$ D. $3\frac{3}{4}$

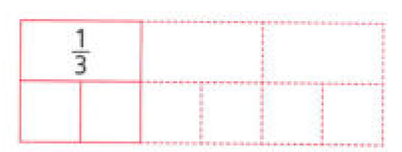
d. $3 + \frac{2}{7} + 5 + \frac{2}{7} =$ ....

A. $8\frac{2}{7}$ B. $8\frac{2}{14}$ C. $8\frac{4}{7}$ D. $8\frac{5}{7}$

e. What is the equivalent fraction to $\frac{1}{3}$?

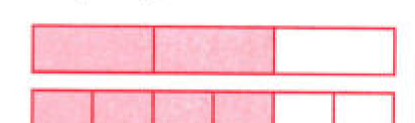
A. $\frac{2}{6}$ B. $\frac{4}{6}$

C. $\frac{2}{8}$ D. $\frac{3}{9}$

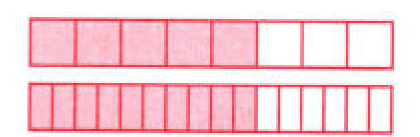


2. Write the missing numerator or denominator.

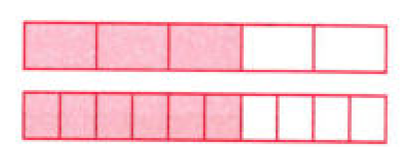
a. $\frac{2}{3} = \frac{\square}{6}$



b. $\frac{5}{8} = \frac{10}{\square}$



c. $\frac{3}{5} = \frac{\square}{10}$



3. Complete.

a. $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} +$ ....

b. $1 - \frac{3}{7} =$ ....

c. $2\frac{3}{5} =$ .... (as an improper fraction)

d. $\frac{14}{__} = 7$

e. $2 - \frac{1}{3} - \frac{1}{3} =$ ....

f. Three tenths $= \frac{2}{10} +$ ....

g. $\frac{7}{7} = \frac{5}{__}$

h. The numerator of a proper fraction is .... than its denominator.

4. Sara ate $1\frac{1}{3}$ of a chocolate cake and her brother Adel ate $\frac{4}{3}$ of a cake of the same size. Draw and color a model for each one of them , then show who ate more cake Sara or Adel ?

....

Cumulative Assessment 6 Till lessons (10&11) unit 9

1. Choose the correct answer.

a. $1\frac{4}{7}+5\frac{2}{7}=$ ....

A. $6\frac{6}{14}$ B. $6\frac{8}{7}$ C. $6\frac{6}{7}$ D. $7\frac{6}{7}$

b. $\frac{13}{7}$ ◯ $\frac{13}{5}$

A. > B. < C. =

c. $\frac{6}{11}$ ◯ $\frac{4}{11}$

A. > B. < C. =

d. Which of the following is an improper fraction ?

A. $\frac{1}{5}$ B. $\frac{11}{2}$ C. $5\frac{1}{2}$ D. $\frac{3}{5}$

e. $\frac{3}{4}=$ ....

A. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ B. $\frac{1}{3}+\frac{1}{3}+\frac{1}{3}$ C. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ D. $\frac{3}{4}+\frac{3}{4}+\frac{3}{4}$

f. Which of the following fractions is closest to 1 ?

A. $\frac{1}{7}$ B. $\frac{2}{11}$ C. $\frac{4}{10}$ D. $\frac{10}{11}$

g. Which of the following fractions is less than $\frac{1}{2}$?

A. $\frac{3}{3}$ B. $\frac{5}{6}$ C. $\frac{3}{8}$ D. $\frac{6}{12}$

2. Find the result of each of the following.

a. $2+\frac{2}{9}+4+\frac{5}{9}=$ ....

b. $7\frac{3}{5}-5\frac{1}{5}=$ ....

c. $2-\frac{1}{4}-\frac{1}{4}=$ ....

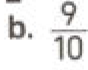
d. $5-2\frac{3}{4}=$ ....

e. $7\frac{2}{7}+\frac{4}{7}=$ ....

f. $\frac{3}{7}+\frac{1}{7}+\frac{1}{7}=$ ....

3. Write weather the fraction is closest to 0 , $\frac{1}{2}$ or 1 (use the number line.)

a.  $\frac{3}{10}$

b.  $\frac{9}{10}$

c. $\frac{1}{10}$

d. $\frac{6}{10}$

(Number line: 0, $\frac{1}{2}$, 1)

4. Use benchmark fractions 0 , $\frac{1}{2}$ and 1 to order each group of fractions.

a. $\frac{1}{7},\frac{8}{8},\frac{5}{6}$ [from the least to the greatest]

b. $\frac{5}{6},\frac{1}{9},\frac{7}{7},\frac{5}{10}$ [from the greatest to the least]

Cumulative Assessment 7 Till lessons (12 to 14) unit 9

1. Choose the correct answer.

a. $\frac{5}{7} <$ ....

A. 1 B. $\frac{3}{7}$ C. $\frac{1}{2}$ D. $\frac{1}{9}$

b. $\frac{3}{9} + \frac{1}{9} + 2 =$ ....

A. $2\frac{4}{9}$ B. $2\frac{4}{18}$ C. $\frac{6}{9}$ D. $2\frac{3}{9}$

c. $5\frac{1}{4} =$ ....

A. $\frac{20}{4}$ B. $\frac{22}{4}$ C. $\frac{21}{4}$ D. $\frac{19}{4}$

d. $5 - 2\frac{1}{5} =$ ....

A. $2\frac{1}{5}$ B. $3\frac{1}{5}$ C. $2\frac{4}{5}$ D. $2\frac{3}{5}$

e. $\frac{3}{7}$ is equivalent to ....

A. $\frac{6}{21}$ B. $\frac{9}{14}$ C. $\frac{9}{21}$ D. $\frac{9}{28}$

2. Write three equivalent fractions to each fraction.

a. $\frac{2}{3} =$ .... = ... = ...

b. $\frac{5}{10} =$ .... = ... = ...

c. $\frac{6}{18} =$ .... = ... = ...

d. $\frac{4}{7} =$ .... = ... = ...

e. $\frac{1}{5} =$ .... = ... = ...

f. $\frac{12}{20} =$ .... = ... = ...

3. Complete.

a. $\frac{43}{5} =$ .... [as a mixed number]

b. $7\frac{2}{5} - 1\frac{1}{5} =$ ....

c. $\frac{5}{9} = \frac{\ldots}{27}$

d. If $\frac{4}{4} = \frac{5}{x}$, then x = ...

e. $\frac{8}{10} = \frac{4}{\ldots}$

f. $\frac{6}{7} \times \frac{3}{3} =$ ....

4. Use the benchmark fractions 0 , $\frac{1}{2}$, 1 to order the following fractions from least to greatest.

$\frac{3}{8}$, $\frac{7}{9}$, $\frac{5}{10}$

5. Ahmed has 12 cakes. $\frac{3}{4}$ of them are choclete. How many choclate cake are there ?

....

Cumulative Assessment 8 Till lesson 15 unit 9

1. Complete.

a. $3\frac{1}{8} + ______ = 7\frac{5}{8}$

b. $3\frac{2}{5} = ______$ [as an improper fraction]

c. $7 \times \frac{1}{9} = ______$

d. $\frac{7}{8} = \frac{21}{__}$

e. $\frac{2}{7} = \frac{__}{__} = \frac{__}{__} = \frac{__}{__}$

f. $\frac{2}{7} \times 3 = ______$

2. Choose the correct answer.

a. $7 \times \frac{1}{4} = ______$

A. $\frac{7}{4}$ B. $\frac{7}{28}$ C. $\frac{1}{28}$ D. $7\frac{1}{4}$

b. $\frac{3}{11}$ ◯ $\frac{3}{7}$

A. > B. < C. =

c. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = ______$

A. $\frac{5}{3}$ B. $\frac{1}{3} \times 4$ C. $\frac{4}{12}$ D. $\frac{1}{12}$

d. $1 + \frac{2}{7} + \frac{1}{7} + 3 = ______$

A. $\frac{7}{7}$ B. $\frac{6}{7}$ C. $7\frac{3}{7}$ D. $4\frac{3}{7}$

3. Use models to solve the following problems.

a. $1 - \frac{2}{8} = ______$

b. $2 - \frac{2}{3} = ______$

4. Draw a model for each of the following improper fractions. Then write each improper fraction as a mixed number.

a. $\frac{7}{3}$

b. $\frac{3}{2}$

5. Write the multiplication sentence for each of the following.

a. $\frac{1}{4} + \frac{1}{4} = ______$

b. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = ______$

c. $\frac{1}{9} + \frac{1}{9} + \frac{1}{9} = ______$

d. $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = ______$

6. How many $\frac{1}{7}$ long wooden pegs can be cut from a plank that is $\frac{6}{7}$ m long?

______

Cumulative Assessments on UNIT 10

Cumulative Assessment 9 Till lessons (1&2) unit 10

1. Choose the correct answer.

a. $0.06 =$ ______

A. $\frac{6}{10}$ B. $\frac{60}{100}$ C. $\frac{6}{100}$ D. 0.6

b. $\frac{2}{100} =$ ______

A. 0.2 B. 0.20 C. $\frac{20}{10}$ D. 0.02

c. $7 \times \frac{1}{10} =$ ______

A. $\frac{7}{10}$ B. 0.07 C. $7 + \frac{1}{10}$ D. $\frac{2}{10} + \frac{6}{10}$

d. $\frac{3}{5} + \frac{1}{5} =$ ______

A. $\frac{4}{10}$ B. $\frac{4}{5}$ C. $3 \times \frac{1}{5}$ D. $\frac{31}{5}$

e. $\frac{18}{__} = 2$

A. 2 B. 18 C. 9 D. 6

2. Complete.

a. $\frac{42}{8} =$ ______ (as a mixed number)

b. ______ $- 1\frac{2}{5} = 3\frac{1}{5}$

c. $2\frac{3}{4} - \frac{1}{4} =$ ______

d. $\frac{5}{5} = \frac{__}{9}$

e. $\frac{7}{100} =$ ______ (as a decimal)

f. $\frac{3}{10} =$ ______ (as a decimal)

3. Write each of the following as a decimal.

a. $\frac{8}{100} =$ ______

b. $\frac{5}{10} =$ ______

c. $\frac{15}{100} =$ ______

d. $\frac{35}{100} =$ ______

e. $\frac{1}{100} =$ ______

f. $\frac{7}{10} =$ ______

4. Write each of the following as a fraction.

a. $0.8 =$ ______

b. $0.09 =$ ______

c. $0.18 =$ ______

d. $0.74 =$ ______

e. $0.4 =$ ______

f. $0.31 =$ ______

Cumulative Assessment  Till lessons (3&4) unit 10

1. **Write the value and the place value of the circled digit in each of the following.**

a. 7.45 ________ , ________

b. 13.73 ________ , ________

c. 451.7 ________ , ________

d. 202.94 ________ , ________

2. **Write in word form.**

a. 7.18 ____________________

b. $1 + 0.7 + 0.03$ ____________________

c. 6 Ones and 2 Hundredths ____________________

3. **Write in standard form.**

a. $5 + 0.6 + 0.02$ ________

b. Seven and eight hundredths ________

c. 4 Ones , 7 Tenths and 4 Hundredths ________

4. **Choose the correct answer.**

a. The place value of the digit 8 in the number 19.28 is ________

A. $\frac{8}{10}$ B. 0.08 C. Tenths D. Hundredths

b. The value of the digit 5 in the number 3.54 is ________

A. 0.5 B. 0.05 C. Tenths D. Hundredths

c. $\frac{5}{3}$ ◯ $\frac{5}{6}$

A. > B. < C. =

d. $\frac{1}{100} =$ ________

A. 0.1 B. 0.10 C. 0.01 D. 1.01

e. $3 \times \frac{1}{4} =$ ________

A. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ B. $\frac{3}{12}$ C. $3 + \frac{1}{4}$ D. $\frac{3}{4}$

5. **Find the result of each of the following.**

a. $\frac{4}{9} + \frac{1}{9} + 1 + \frac{2}{9} =$ ________

b. $2 - \frac{1}{3} - \frac{1}{3} =$ ________

c. $2\frac{3}{5} + 3\frac{4}{5} =$ ________

d. $7\frac{4}{7} - 2\frac{1}{7} =$ ________

Cumulative Assessment  Till lessons (5&6) unit 10

1. Choose the correct answer.

a. $3 + 0.08 =$ ....

A. 0.38 B. 3.8 C. 3.08 D. 38

b. $2\frac{1}{5} + 1\frac{2}{5} =$ ....

A. $3\frac{3}{10}$ B. $3\frac{3}{5}$ C. $1\frac{1}{5}$ D. $3\frac{1}{5}$

c. 47 Hundredths = ...

A. 0.47 B. 4.7 C. $\frac{47}{10}$ D. 0.74

d. $5\frac{2}{10} =$ .... [as a decimal number]

A. $\frac{52}{10}$ B. 0.52 C. 5.2 D. $2\frac{5}{10}$

e. $\frac{3}{10}$ ◯ $\frac{3}{100}$

A. > B. < C. =

f. The place value of the digit 7 in the number 43.67 is ....

A. Tenths B. Hundredths C. 0.7 D. 0.07

2. Write each of the following in a fraction form.

a. 1.7 = ... b. 5.24 = ... c. 11.87 = ...

d. 2.05 = ... e. 14.9 = ... f. 20.23 = ...

3. Complete.

a. 2 = ... Tenths

b. 3.7 = ... Hundredths

c. 10.4 = ... Hundredths.

d. .... = 79 Tenths

e. 420 Hundredths = ...

f. $\frac{735}{100} =$ .... Hundredths

4. Write the fractions : $\frac{5}{10}$, $\frac{5}{12}$, $\frac{5}{11}$, $\frac{5}{15}$, $\frac{5}{7}$ in an ascending order.

5. Mervat has a brother of height $70\frac{2}{10}$ cm.

a. Express the height in the form of a decimal.

b. How can you rewrite $70\frac{2}{10}$ cm using Tenths only ?

....

....

Cumulative Assessment 12 Till lesson 7 unit 10

1. Choose the correct answer.

a. $\frac{7}{9}+\frac{2}{9}=$ ....

A. 1 B. $\frac{9}{18}$ C. $\frac{1}{2}$ D. $\frac{5}{9}$

b. The value of the digit 3 in the number 5.23 is ....

A. Tenths B. Hundredths C. $\frac{3}{10}$ D. $\frac{3}{100}$

c. 7 Tenths is equivalent to ....

A. 0.70 B. $\frac{7}{100}$ C. 0.07 D. $\frac{77}{100}$

d. Which of the following is not equivalent to $1\frac{3}{10}$?

A. 1.3 B. 1.30 C. 1.03 D. $1\frac{30}{100}$

e. $3\frac{2}{7}=$ .... (as an improper fraction)

A. $\frac{42}{7}$ B. $\frac{21}{3}$ C. $\frac{13}{7}$ D. $\frac{23}{7}$

2. Complete.

a. $7\frac{2}{9}+$ .... $=8\frac{1}{9}$

b. 2.19 = ... Hundredths.

c. $\frac{3}{8}=\frac{18}{\dots}$

d. .... $-1\frac{1}{4}=1\frac{1}{4}$

e. $\frac{3}{10}$ is equivalent to ....

f. 17 Tenths = ...

g. $\frac{5}{7}=\frac{3}{7}+\frac{1}{7}+$ ....

h. $1-\frac{4}{9}=$ ....

i. 2 + 0.2 + 0.02 = ...

j. 4.13 = 4 + 0.1 + ...

k. Two and nine tenths = ...

l. $\frac{17}{5}=$ .... (as a mixed number)

3. Write in expanded form each of the following.

a. 3.79 ....

b. Six and four hundredths ....

c. 4 Ones, 8 Tenths and 9 Hundredths ....

4. Write an equivalent fraction for each.

a. $\frac{4}{10}=$ ....

b. $\frac{70}{100}=$ ....

c. $\frac{5}{10}=$ ....

d. $\frac{90}{100}=$ ....

e. $\frac{8}{10}=$ ....

f. $\frac{10}{100}=$ ....

Cumulative Assessment 13 Till lessons (8 & 9) unit 10

1. Complete.

a. 0.22 = ………… Hundredths

b. $2\frac{1}{11} + 1\frac{2}{11} =$ …………

c. 3.7 = ………… [as a mixed number]

d. $4 \times \frac{1}{5} =$ …………

e. Three and twenty-two hundredths = ………… [as a decimal number]

f. The value of the digit 7 in the number 3.74 is …………

2. Choose the correct answer.

a. 5.03 ◯ 5 + 0.3

A. > B. < C. =

b. 2.4 ◯ 24 Tenths

A. > B. < C. =

c. 0.3 > …………

A. 0.30 B. 0.25 C. 0.52 D. 0.7

d. $3 + \frac{1}{5} + 1 + \frac{3}{5} =$ …………

A. $31\frac{4}{5}$ B. $4\frac{4}{10}$ C. $4\frac{4}{5}$ D. $31\frac{13}{5}$

e. $5\frac{7}{11} - 3\frac{5}{11} =$ …………

A. $8\frac{2}{11}$ B. $2\frac{2}{11}$ C. $8\frac{12}{22}$ D. $2\frac{12}{11}$

f. 2 Ones and 3 Tenths = …………

A. 3.2 B. 0.23 C. 0.32 D. 2.3

3. A rectangle of length $7\frac{1}{6}$ cm and width $2\frac{1}{6}$ cm. Calculate its perimeter.

………………………………………………

4. Nermine ate 0.7 of her food. Her brother at $\frac{3}{10}$ of his food, if they have the same amount of food. Who ate more ?

………………………………………………

Cumulative Assessment 14 Till lessons (10 & 11) unit 10

1. Find the result.

a. $2\frac{5}{10}+3\frac{21}{100}=$ ....

b. $\frac{2}{10}+\frac{21}{100}+2\frac{5}{10}=$ ....

c. $2\frac{3}{5}+7\frac{1}{5}=$ ....

d. $\frac{32}{100}+\frac{24}{100}+\frac{7}{10}=$ ....

e. $5-4\frac{2}{5}=$ ....

f. $2+1\frac{1}{7}+3+4\frac{4}{7}=$ ....

2. Complete.

a. $\frac{40}{100}=\frac{\dots}{10}$

b. $7.27=$ .... (in word form)

c. $\frac{9}{\dots}=1$

d. $2-\frac{1}{3}=$ ....

e. $8\frac{7}{9}-$ .... $=2\frac{1}{9}$

f. $9+0.07+0.8=$ ....

g. The place value of the digit 7 in the number 13.57 is ....

3. Choose the correct answer.

a. $\frac{7}{10}+\frac{2}{10}=\frac{\dots}{100}$

A. 9　B. 90　C. 5　D. 50

b. $\frac{3}{10}+\frac{7}{10}=$ ....

A. $\frac{10}{100}$　B. $\frac{1}{10}$　C. 10　D. 1

c. $\frac{7}{8}>$ ....

A. $\frac{8}{8}$　B. $\frac{1}{2}$　C. $1\frac{1}{4}$　D. $\frac{7}{6}$

d. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=$ ....

A. $\frac{5}{8}$　B. $\frac{5}{40}$　C. $\frac{6}{8}$　D. $\frac{1}{40}$

e. $\frac{5}{10}+\frac{3}{100}=\frac{\dots}{100}$

A. 35　B. 53　C. 503　D. 305

f. Seventeen tenths = ... (as a decimal)

A. 0.17　B. 1.7　C. 7.1　D. $1\frac{7}{10}$

4. Amany has $\frac{7}{10}$ meter of cloth, she went to a shop and bought $\frac{35}{100}$ meter of cloth. How many meters of cloth has Amany now?

....

Cumulative Assessment 15 Till lesson 1 unit 11

1. Choose the correct answer.

a. The opposite graph shows a ______

A. pictograph.

B. line plot.

C. bar graph.

D. double bar graph.



b. $\frac{3}{100}$ = ______

A. 0.3 B. 0.03 C. 3 D. 30

c. $3\frac{1}{3} + 1\frac{1}{3}$ = ______

A. $4\frac{2}{3}$ B. $4\frac{2}{6}$ C. $2\frac{2}{6}$ D. $2\frac{2}{3}$

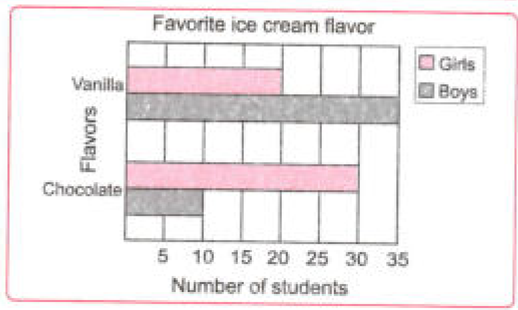
d. $\frac{7}{9}$ ______ 1

A. > B. < C. =

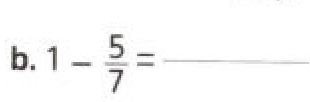
e. Five and one hundredths = ______

A. 5.1 B. 51 C. 5.01 D. $5\frac{1}{10}$

2. Complete.



a. From the opposite double bar graph : The difference of the number of boys between vanilla and chocolate is ______ boys.



b. $1 - \frac{5}{7}$ = ______

c. $\frac{6}{10}$ is equivalent to $\frac{\quad}{100}$

d. $7 \times \frac{1}{8}$ = ______

e. $3 + \frac{1}{5} + 2 + \frac{3}{5}$ = ______

f. The place value of the digit 3 in the number 5.13 is ______



g. $\frac{14}{100}$ = ______ [as a decimal]

h. $5\frac{3}{4}$ = ______ [as an improper fraction]

3. **The following data shows the favorite fruit between boys and girls. Observe the double bar graph, then answer the questions.**

a. How many boys liked orange ?

b. How many girls liked apple ?

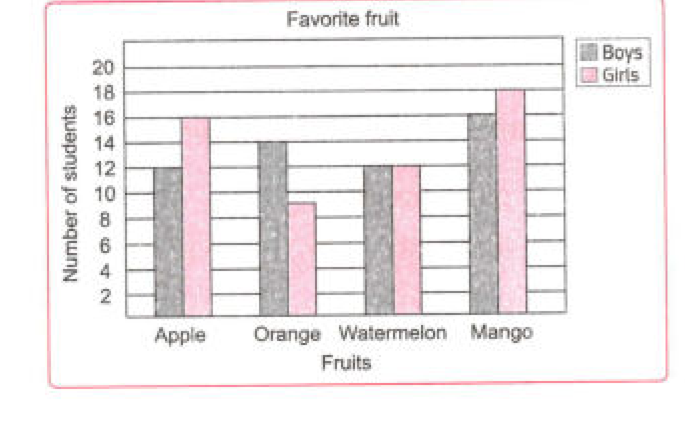
c. Which fruit is liked the most by boys ?

d. Which fruit is liked the least by girls ?

e. Which fruit shows the same number of boys and girls ?

f. What is the total number of boys and girls liked orange ?

g. How many more girls liked mango than watermelon ?



4. **Find the result of each of the following.**

a. $2\frac{1}{3}+1\frac{2}{3}=$ ______

b. $2-1\frac{4}{5}=$ ______

c. $5\times\frac{1}{7}=$ ______

d. $1-\frac{1}{7}-\frac{2}{7}=$ ______

e. $\frac{1}{9}+\frac{2}{9}+\frac{3}{9}=$ ______

f. $5\frac{7}{8}-3\frac{5}{8}=$ ______

5. **Arrange in an ascending order.**

a. $\frac{7}{9}$, $\frac{5}{9}$, $\frac{4}{9}$, $\frac{6}{9}$, $\frac{2}{9}$

______

b. $\frac{3}{11}$, $\frac{3}{7}$, $\frac{3}{5}$, $\frac{3}{8}$, $\frac{3}{10}$

______

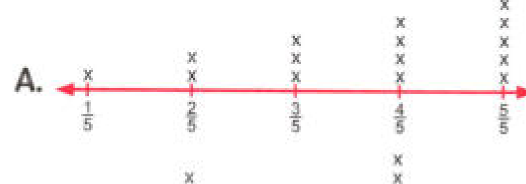
Cumulative Assessment 16 Till lessons (2 & 3) unit 11

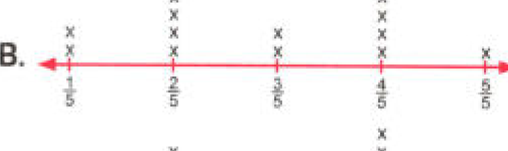
1. Choose the correct answer.

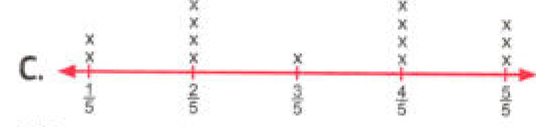
a. The line plot which shows the following data

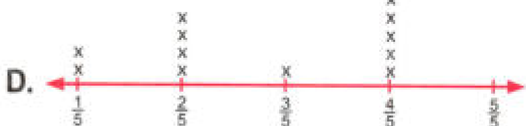
$\frac{4}{5}$	$\frac{2}{5}$	$\frac{4}{5}$	$\frac{2}{5}$	1	$\frac{4}{5}$	$\frac{2}{5}$	1	$\frac{1}{5}$	$\frac{3}{5}$	$\frac{2}{5}$	1	$\frac{4}{5}$	$\frac{1}{5}$	$\frac{4}{5}$

is ....

A. 

B. 

C. 

D. 

b. Fifty-seven hundredths in standard form is ....

A. 5.7 B. 0.57 C. 57 D. 0.75

c. $\frac{8}{10} = \frac{4}{\ldots}$

A. 20 B. 10 C. 5 D. 2

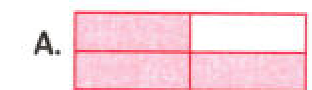
d. $0 \bigcirc \frac{2}{7}$

A. > B. < C. =

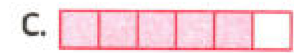
e. Which of the following fractions is less than $\frac{1}{2}$?

A. $\frac{7}{7}$ B. $\frac{9}{10}$ C. $\frac{1}{4}$ D. $\frac{4}{8}$

f. The model which represents $\frac{5}{6}$ is ....

A. 

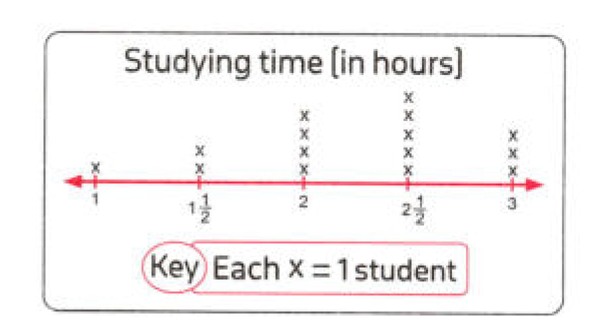
B. 

C. 

D.

2. Complete.

a. From the opposite line plot :
The number of students who studied 2 hours or more is .... students.



b. $\frac{34}{100} + \frac{4}{10} =$ ....

c. 70 tenths = ...

d. $\frac{7}{8} = \frac{1}{8} + \frac{3}{8} +$ ....

e. $\frac{3}{5} = \frac{\ldots}{15}$

f. $\frac{19}{5} =$ .... (as a mixed number)

g. $\frac{38}{100} =$ .... (as a decimal)

h. The value of the digit 6 in the number 2.16 is ....

i. $5\frac{3}{4} =$ .... (as an improper fraction)

3. **Find the result.**

a. $2 - \frac{3}{7} - \frac{4}{7} =$ ....

b. $2\frac{1}{5} + 1\frac{3}{5} =$ ....

c. $3\frac{1}{4} - 2\frac{3}{4} =$ ....

d. $1 + 2\frac{1}{7} + 3\frac{4}{7} =$ ....

4. **Arrange in a descending order.**

a. $\frac{3}{7}$, $\frac{5}{7}$, $\frac{1}{7}$, $\frac{6}{7}$, $\frac{2}{7}$

....

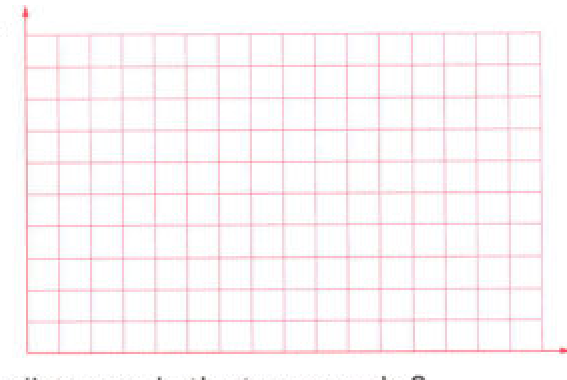
b. $\frac{2}{5}$, $\frac{2}{7}$, $\frac{2}{3}$, $\frac{2}{10}$, $\frac{2}{6}$

....

5. **The following data shows the jump distances for 5 students (in meters) in two rounds.**

Name / Rounds	Noura	Maged	Sama	Youssef	Ramy
1st Round	$\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{1}{2}$
2nd Round	$\frac{3}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	1

Represent these data , then answer the questions.



a. Which student jumped the highest distance in the first round ?

b. Which student jumped the highest distance in the second round ?



c. Which student jumped less distance in the second round than the first round ?

d. What is the difference between Youssef's jump distances in the two rounds ?

Cumulative Assessments on UNIT 12

Cumulative Assessment 17 Till lessons (1 & 2) unit 12

1. Choose the correct answer.

a. The name of the opposite figure is ....



A. $\overleftrightarrow{AB}$ B. $\overline{AB}$ C. $\overrightarrow{BA}$ D. $\overrightarrow{AB}$

b. The opposite two line are ....

A. intersecting

B. parallel

C. perpendicular

D. intersecting and not perpendicular

c. $7\frac{1}{3}$ = ... (as an improper fraction).

A. $\frac{22}{3}$ B. $\frac{21}{3}$ C. $\frac{71}{3}$ D. $\frac{15}{3}$

d. $\frac{3}{7}$ ◯ $\frac{3}{5}$

A. > B. < C. =

e. $3\frac{2}{10} = 3\frac{\square}{100}$

A. 2,000 B. 200 C. 20 D. 2

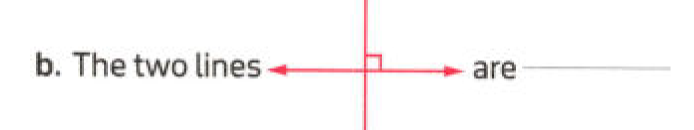
f. 3.2 = ... tenths.

A. 3.2 B. 320 C. 302 D. 32

2. Complete.

a. The name of ⟶ is a ....

b. The two lines

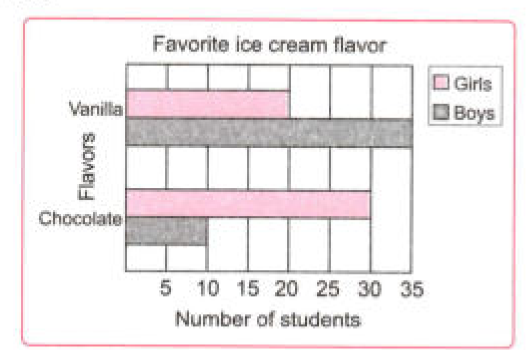


are ....

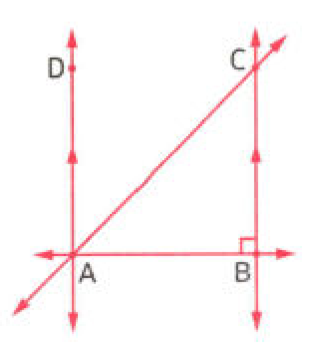
c. $7 \times \frac{1}{9}$ = ...

d. $\frac{2}{10} + \frac{31}{100}$ = ...

e. From the opposite double bar graph :
The sum of the number of
boys in vanilla and chocolate is ....



3. **In the shape at the right, identify :**



a. A pair of parallel lines.

b. A pair of perpendicular lines.

c. A pair of intersecting lines.

4. a. **Draw $\overleftrightarrow{XY}$ is parallel to $\overleftrightarrow{AB}$.**



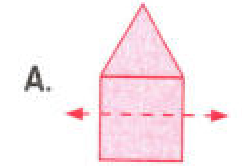
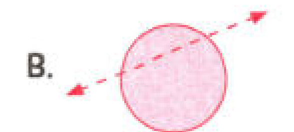
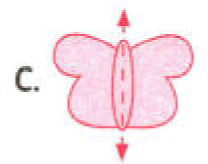
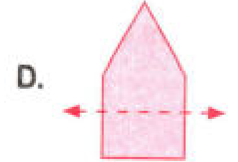
b. **Draw $\overleftrightarrow{LM}$ is perpendicular to $\overleftrightarrow{EF}$.**



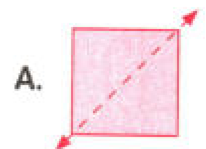
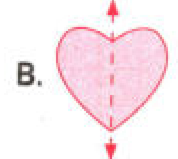
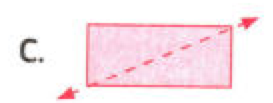
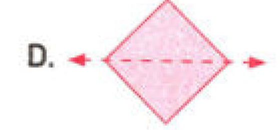
Cumulative Assessment  18 Till lessons (3 & 4) unit 12

1. Choose the correct answer.

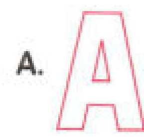
a. Which of the following figures shows a line of symmetry ?

A. 
B. 
C. 
D. 

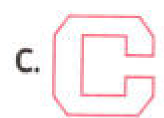
b. All the following figures show a line of symmetry except ....

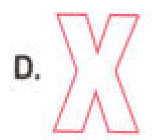
A. 
B. 
C. 
D. 

c. All the following figures has one line of symmetry except .... has more than one line of symmetry.

A. 

B. 

C. 

D. 

d. All perpendicular lines also ....

A. parallel B. intersecting C. not intersecting D. not perpendicular

e. $3\frac{4}{10}$ is equivalent to ....

A. $3\frac{40}{10}$ B. $3\frac{4}{100}$ C. $3\frac{40}{100}$ D. 3.04

f. $\frac{5}{6} = \frac{1}{6} + \frac{2}{6} +$ ....

A. $\frac{1}{6}$ B. $\frac{2}{6}$ C. $\frac{3}{6}$ D. $\frac{4}{6}$

2. Complete.

a. $3 \times \frac{1}{5} =$ ....

b. $3\frac{2}{7} + 1\frac{3}{7} =$ ....

c. $1 - \frac{4}{5} =$ ....

d. $2\frac{4}{5} =$ .... [as an improper fraction]

e. The place value of the digit 5 in the number 3.25 is ....

f. The word form of 30.03 is ....

3. Find.

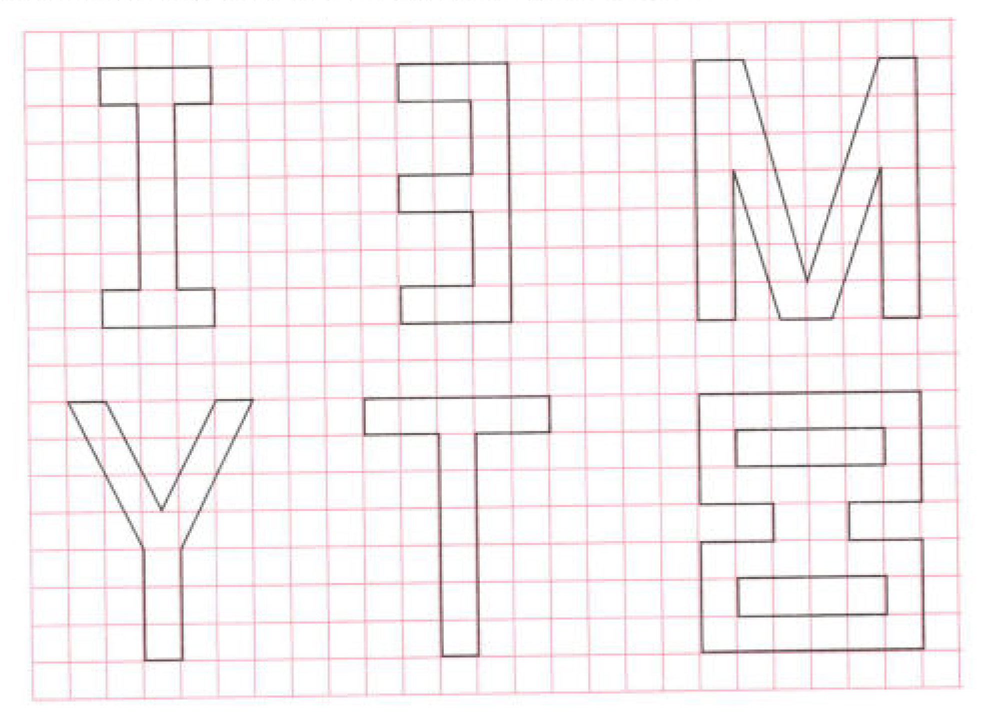
a. $5 + 1\frac{1}{5} + 2\frac{2}{5} + 2 =$ ______

b. $2 - \frac{1}{5} - \frac{1}{5} =$ ______

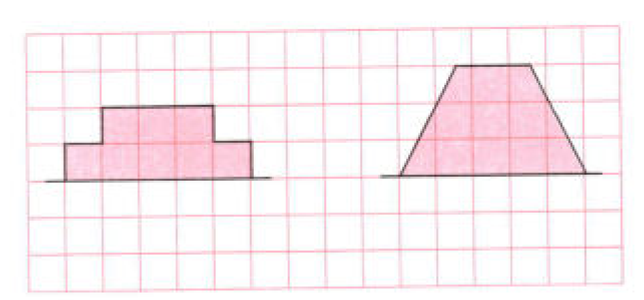
c. $7\frac{5}{9} - 5\frac{4}{9} =$ ______

d. $5\frac{4}{10} + 3\frac{1}{10} =$ ______

4. Draw a line of symmetry in each of the following figures.



5. In each picture, you can see half of the shape and the line of symmetry. Draw the rest of each shape.

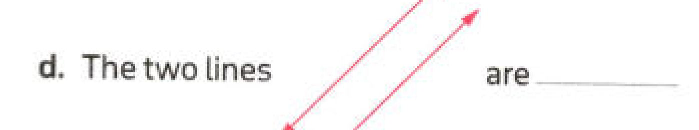


Cumulative Assessment  19 Till lessons (5 & 6) unit 12

1. Complete.

a. An __________ angle is less then a right angle.

b. An __________ angle is greater than a right angle.

c. The name of  is a __________

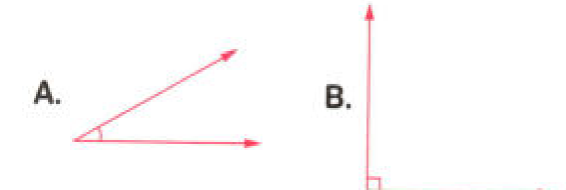
d. The two lines are __________

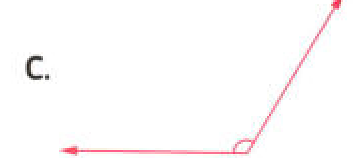
e. $\frac{5}{7} = \frac{2}{7} +$ __________

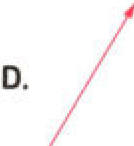
f. $2\frac{1}{7} =$ __________ (as an improper fraction)

2. Choose the correct answer.

a. Which figure shows a right angle ?

A. B. 

C. 

D. 

b. How many obtuse angles are there in the opposite figure ?

A. 0 B. 1

C. 2 D. 3

c. $5 \times \frac{1}{7} =$ __________

A. $\frac{5}{7}$ B. $5\frac{1}{7}$ C. $\frac{15}{7}$ D. $1 + \frac{5}{7}$

d. 5.17 = __________ hundredths.

A. 51.7 B. 0.517 C. 517 D. 5170

e. $\frac{2}{7} \bigcirc \frac{6}{7}$

A. > B. < C. =

f. $\frac{3}{10} + \frac{1}{100} =$ __________

A. $1\frac{3}{10}$ B. $3\frac{1}{100}$ C. $\frac{31}{10}$ D. $\frac{31}{100}$

3. **Find the result of each of the following.**

a. $2\frac{1}{5} + 1\frac{2}{5} =$ ______

b. $7\frac{9}{13} - 5\frac{5}{13} =$ ______

c. $5 \times \frac{1}{9} =$ ______

d. $2 - \frac{4}{5} - \frac{3}{5} =$ ______

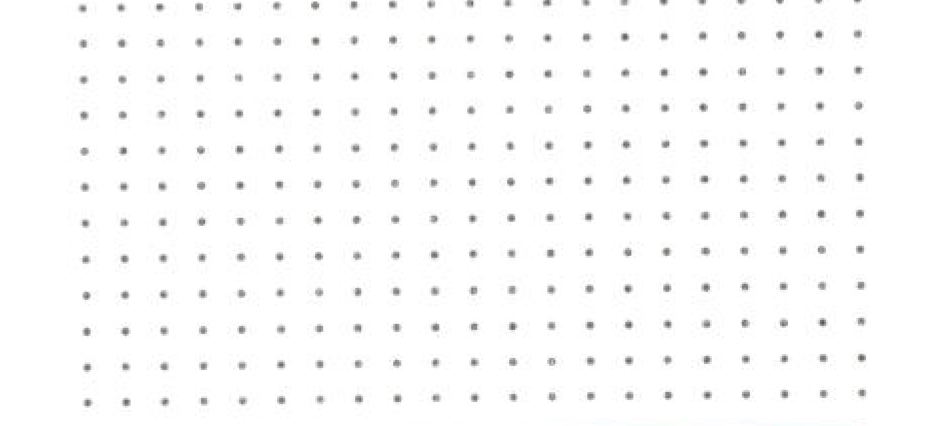
4. **Use a ruler to connect the dots to draw and label the following in the grid.**

a. An acute angle.

b. An obtuse angle.

c. A right angle.

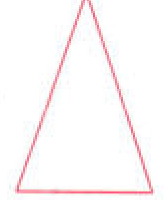
d. A right angle and an obtuse angle that share an endpoint.

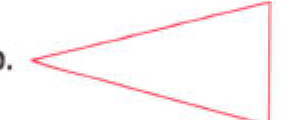


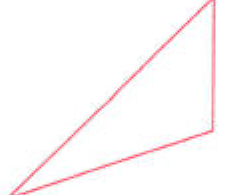
5. **Draw a quadrilateral with two acute angles and two obtuse angles.**

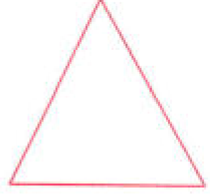
Cumulative Assessment 20 Till lessons (7 & 8) unit 12

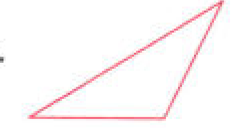
1. **Classify each triangle by its sides and angles.**

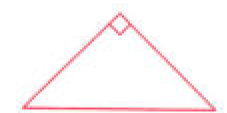
a. 

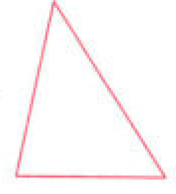
b. 

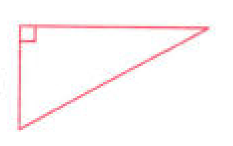
c. 

d. 

e. 

f. 

g. 

h. 

2. **Choose the correct answer.**

a. All the obtuse triangles has .... acute angle(s).

A. 0 B. 1 C. 2 D. 3

b. The opposite triangle is .... triangle.

A. an acute B. an obtuse

C. a right D. an equilateral

c. The scalene triangle has .... equal side(s).



A. 0 B. 1 C. 2 D. 3

d. The palce value of the digit 4 in the number 3.14 is ....

A. Ones B. Tens C. Tenths D. Hundredths

e. $\frac{30}{100} = \frac{\quad}{10}$

A. 3 B. 30 C. 300 D. 3000

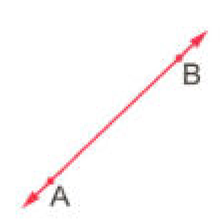
f. $\frac{34}{5} =$ .... (as a mixed number)

A. $30\frac{4}{5}$ B. $7\frac{1}{5}$ C. $6\frac{4}{5}$ D. $6\frac{2}{5}$

g. The opposite figure is named as ....

A. $\overrightarrow{AB}$ B. $\overline{AB}$

C. $\overleftrightarrow{AB}$ D. $\overrightarrow{BA}$



3. Complete.

a. The ________ triangle has three equal sides.

b. The ________ triangle has no equal sides.

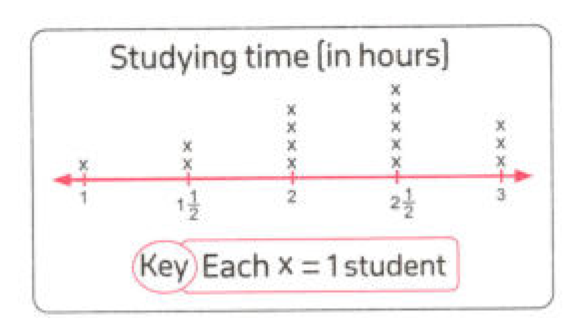
c. The value of the digit 7 in the number 3.75 is ________

d. $7 + \frac{3}{7} =$ ________

e. $1 - \frac{4}{5} =$ ________

f. From the opposite line plot :

The number of students who study $2\frac{1}{2}$ hours or more is ________ students.



4. Draw each of the following.

a. A triangle with an obtuse angle.

b. An isosceles triangle.

c. A right angle.

Cumulative Assessment  21 Till lesson (9) unit 12

1. Choose the correct answer.

a. The quadrilateral that has equal sides with 4 right angles is a ______

A. rectangle. B. square. C. trapezium. D. rhombus.

b. A parallelogram has ______

A. 4 right angles. B. 4 equal sides.

C. 1 pair of parallel sides. D. 2 pairs of parallel sides.

c. A ______ has a vary measuring angles with only one pair of parallel sides.

A. parallelogram B. rhombus C. trapezium D. square

d. The opposite graph shows a ______

A. pictograph.

B. line plot.

C. bar graph.

D. double bar graph.

Sold items

Items	2020	2021
Toys	50	70
Books	60	60
Gifts	30	70

Number of items: 10, 20, 30, 40, 50, 60, 70

e.  $\frac{7}{100} =$ ______

A. 0.7 B. 0.07 C. 0.70 D. 7

f. Two and two hundredths = ______

A. 2.2 B. 202 C. 2.02 D. 2.20

g. The opposite figure is named as ______



A. $\overline{BA}$ B. $\overrightarrow{AB}$

C. $\overleftrightarrow{BA}$ D. $\overrightarrow{BA}$

h. The equilateral triangle has ______ equal side[s].

A. 0 B. 1 C. 2 D. 3

2. Complete.

a. The square has ______ right angles.

b. The rhombus has ______ equal sides.

c. $30 + 4 + 0.1 + 0.07 =$ ______

d. $\frac{2}{3} = \frac{\quad}{15}$

e. $7.1 =$ ______ tenths.

f. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ ______

3. **Find the result.**

a. $3\frac{7}{8} - 2\frac{5}{8}$

b. $2\frac{3}{4} + 3\frac{1}{4}$

c. $2 - \frac{1}{3} - \frac{1}{3}$

d. $5 + 1\frac{1}{3} + 2 + 2\frac{1}{3}$

4. **Use your ruler to connect the dots to draw.**



a. An obtuse angle.

b. A right triangle.

c. A trapezoid.

Cumulative Assessments on UNIT 13

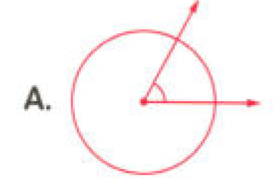
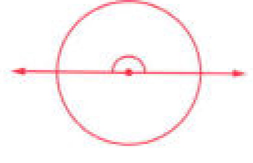
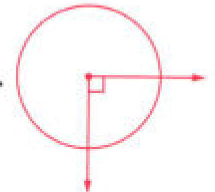
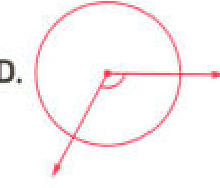
Cumulative Assessment 22 Till lesson 1 unit 13

1. Choose the correct answer.

a. ________ is the same point as 0° after one full rotation.

A. 90° B. 180° C. 270° D. 360°

b. Which of the following figures shows a $\frac{1}{4}$ of a full rotation ?

A. 
B. 
C. 
D. 

c. ________ is an obtuse angle.

A. 70° B. 125° C. 90° D. 180°

d. The opposite two lines are ________

A. parallel. B. intersecting and not perpendicular.

C. perpendicular. D. intersecting.



e. $5 + 0.02 + 0.1 =$ ________

A. 5.21 B. 5.12 C. 12.5 D. 1.52

f. The isosceles triangle has ________ equal side[s].

A. 0 B. 1 C. 2 D. 3

g. ________ angle is smaller than the right angle.

A. A straight B. An obtuse C. A right D. An acute

h. $\frac{5}{7} = \frac{1}{7} + \frac{2}{7} +$ ________

A. $\frac{1}{7}$ B. $\frac{2}{7}$ C. $\frac{3}{7}$ D. $\frac{4}{7}$

i. The place value of the digit 6 in the number 2.64 is ________

A. Ones. B. Tenths. C. Hundredths. D. Tens.

2. Complete.

a. 84° is classified as ________ angle.

b. An obtuse angle measured between ________ ° and ________ °.

c. $\frac{1}{6}$ of a circle measured ________ °.

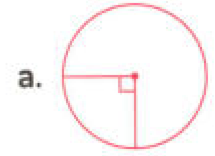
d. $7\frac{1}{3} =$ ________ (as an improper fraction)

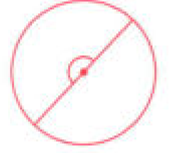
e. Two hundred and fourteen hundredths = ________

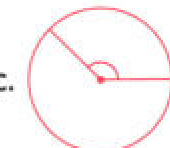
f. $7 - 3\frac{1}{2} =$ ________

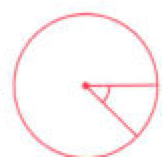
g. $2 \times \frac{1}{5} =$ ________

3. **Classify each angle of the following.**

a. 
____

b. 
____

c. 
____

d. 
____

4. **Find.**

a. $3 + 1\frac{1}{5} + 2 + 3\frac{2}{5}$

b. $3 + \frac{2}{7}$

c. $2 - \frac{1}{2} - \frac{1}{2}$

d. $10\frac{3}{10} - 7\frac{2}{10}$

5. **Draw.**

a. A quadrilateral with 4 right angles and 4 equal sides.

b. An acute triangle.

c. An obtuse angle.

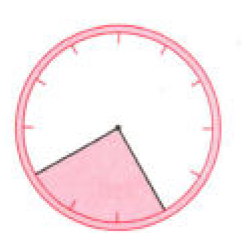
Cumulative Assessment 23 Till lesson 2 unit 13

1. Choose the correct answer.

a. The angle with measured 120° shows a fraction ________

A. $\frac{1}{3}$ B. $\frac{2}{3}$ C. $\frac{3}{4}$ D. $\frac{1}{2}$

b. The angle which represents the colored part equals ________



A. 30° B. 60°

C. 90° D. 120°

c. The fraction which shows the colored part equals ________

A. $\frac{1}{4}$ B. $\frac{1}{3}$

C. $\frac{1}{2}$ D. $\frac{1}{6}$

d. 1 = ________



A. $\frac{5}{7}$ B. $\frac{7}{7}$ C. $\frac{1}{2}$ D. $\frac{1}{10}$

e. $\frac{3}{7}$ is equivalent to ________

A. $\frac{6}{21}$ B. $\frac{9}{14}$ C. $\frac{9}{21}$ D. $\frac{9}{28}$

f. 7 Tenths is equivalent to ________

A. 0.70 B. $\frac{7}{100}$ C. 0.07 D. $\frac{77}{100}$

2. Complete.

a. $\frac{80}{100} = \frac{\quad}{10}$

b. $7\frac{7}{9} -$ ________ $= 5\frac{5}{9}$

c. 10.3 = ________ Tenths.

d. 3 Ones and 5 Hundredths = ________

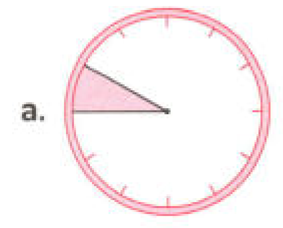
e. The numerator of the fraction $\frac{3}{7}$ is ________

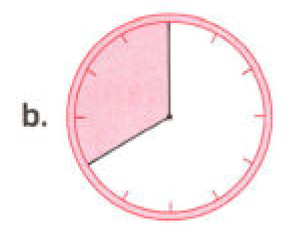
f. 3 + 0.03 + 0.3 = ________

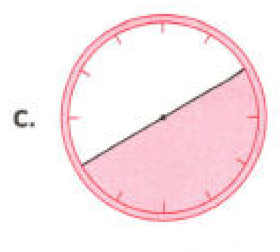
g. $\frac{2}{10} + \frac{7}{100} =$ ________

h. $3\frac{2}{5} =$ ________ (as an improper fraction)

3. Write the fraction of the clock colored and how many degrees of the clock that fraction represents.

a.  ________

b.  ________

c.  ________

4. Find.

a. $2\frac{3}{5}+1\frac{1}{5}$

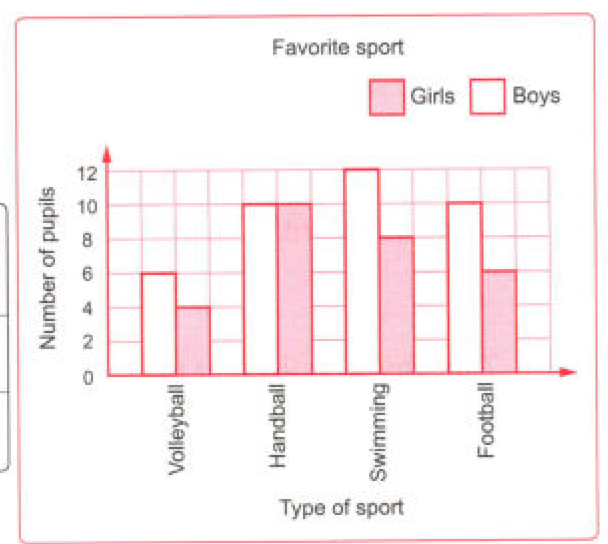
b. $9\frac{7}{11}-5\frac{5}{11}$

c. $3-1\frac{3}{4}$

d. $2\frac{1}{7}+1+3\frac{2}{7}+4$

5. By using the opposite graph :

Answer the following questions.



a. **Complete the table.**

Sport / Pupils	Volleyball	Handball	Swimming	Football
Boys	6	____	____	____
Girls	____	____	____	6



b. **How many boys prefer swimming ?**

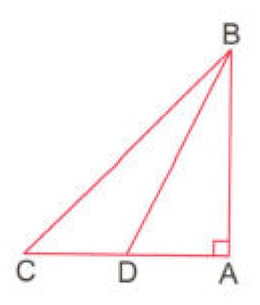
____

c. **How many girls prefer volleyball ?**

____

Cumulative Assessment 24 Till lessons (3 & 4) unit 13

1. **In the opposite figure, name an acute angle, obtuse angle and right angle.**





a. Acute angle ____________

b. Obtuse angle ____________

c. Right angle ____________

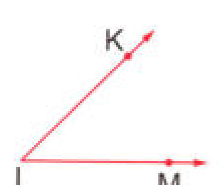
2. **Write three different names for each angle.**

a.

Name 1 : ____________

Name 2 : ____________

Name 3 : ____________

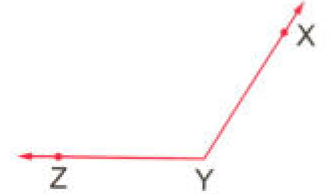


b.

Name 1 : ____________

Name 2 : ____________

Name 3 : ____________



3. **Complete.**

a. $\frac{7}{__} = 1$

b. $\frac{2}{5} \times \frac{3}{3} =$ ____________

c. 3.5 = ____________ Tenths.

d. $\frac{23}{5} =$ ____________ (as a mixed number)

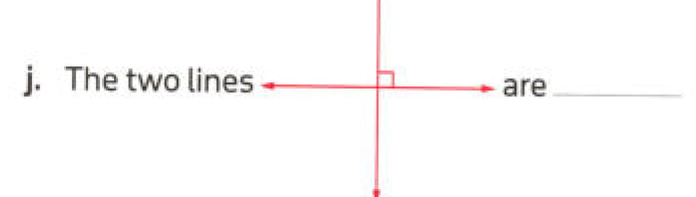
e. $\frac{5}{15} = \frac{15}{__}$

f. $4\frac{5}{7} +$ ____________ $= 6\frac{5}{7}$

g. There are ____________ unit fractions that form seven eighths.

h. The place value of the digit 5 in the number 3.75 is ____________

i. The name of •——→ is a ____________



j. The two lines are ____________

k. An ____________ angle is greater than a right angle and smaller than a straight angle.

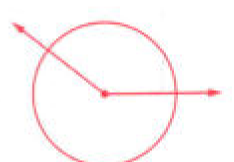
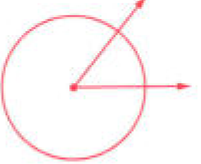
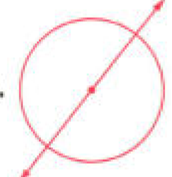
l. The equilateral triangle has ____________ equal sides.

4. Choose the correct answer.

a. Which of the following figures has only one line of symmetry ?

A. B. C. D.

b. Which of the following figures shows a $\frac{1}{2}$ of a full rotation ?

A.
B.

C.

D.


c. The model which represents $\frac{5}{6}$ is ________

A. B.

C. D.

d. In the number 31.45, which digit is in the Tenths place ?

A. 3 B. 1 C. 4 D. 5

e. Which of the following sentences is wrong ?

A. $\frac{1}{3} > \frac{1}{4}$ B. $\frac{1}{4} > \frac{1}{5}$ C. $\frac{1}{5} > \frac{1}{6}$ D. $\frac{1}{8} > \frac{1}{7}$

f. 0.08 = ________ Hundredths.

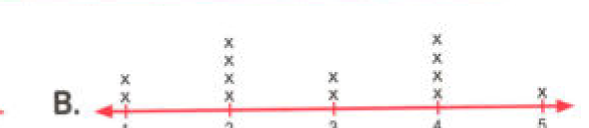
A. 80 B. 0.8 C. 8 D. 800

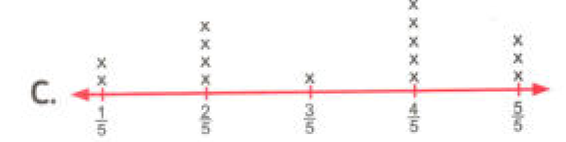
g. The line plot which shows the following data

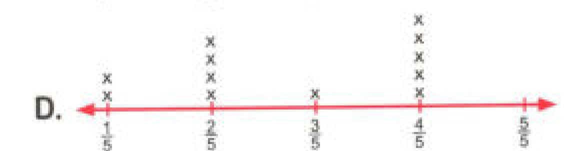
$\frac{4}{5}$	$\frac{2}{5}$	$\frac{4}{5}$	$\frac{2}{5}$	1	$\frac{4}{5}$	$\frac{2}{5}$	1	$\frac{1}{5}$	$\frac{3}{5}$	$\frac{2}{5}$	1	$\frac{4}{5}$	$\frac{1}{5}$	$\frac{4}{5}$

is ________

A.

B.


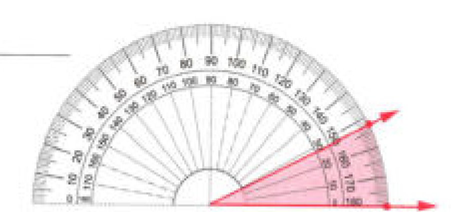
C.


D.


Cumulative Assessment  25 Till lessons (5 to 7) unit 13

1. Choose the correct answer.

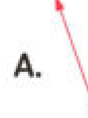
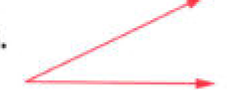
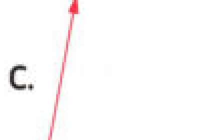
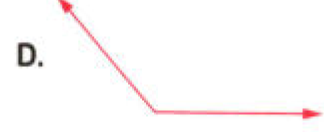
a. The opposite figure shows an angle with measure ________



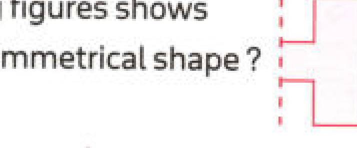
A. 25°　　B. 27°

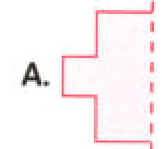
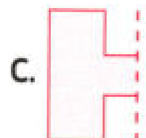
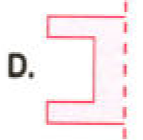
C. 153°　　D. 155°

b. Without using protractor, an angle with measure 80° is drawn as ________

A. 　B.  　C. 　D. 

c. Which of the following figures shows the other half of the symmetrical shape ?



A. 　B. 　C. 　D. 

d. The opposite figure is named as ________



A. $\overline{AB}$　　B. $\overleftrightarrow{BA}$

C. $\overrightarrow{AB}$　　D. $\overrightarrow{BA}$

e. The value of the digit 0 in the number 3.05 is ________

A. 3　　B. 0.05　　C. 0　　D. 0.3

f. 5.16 = 5 + 0.06 + ________

A. 5　　B. 0.1　　C. 0.06　　D. 0.5

g. $6\frac{2}{5}$ = ________ (as an improper fraction)

A. $\frac{30}{5}$　　B. $\frac{62}{5}$　　C. $\frac{32}{5}$　　D. $6+\frac{2}{5}$

h. 3.2 = ________ Hundredths.

A. 3.2　　B. 32　　C. 320　　D. 3.20

2. Complete.

a. The place value of the digit 5 in the number 3.15 is ________

b. The word form of 13.13 is ________

c. $\frac{9}{10} = \frac{5}{10} +$ ______

d. An ______ angle is less than a right angle.

e. The isosceles triangle has ______ equal sides.

f. The ______ triangle has three equal sides.

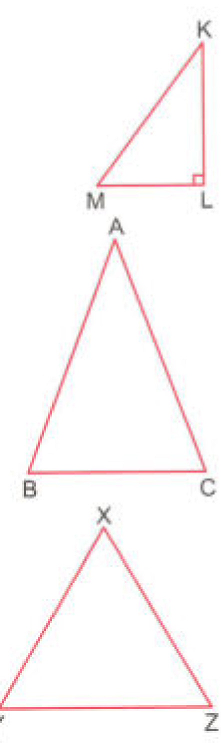
g. $\frac{4}{5} = \frac{20}{__}$

h. The rectangle has ______ right angles.

3. **Use your protractor to draw each of the following angles.**

a. 70°	b. 53°	c. 130°

4. **By using your geometric instruments the ruler and the protractor , determine the type of each of the following triangles .**



a. ⋆ Type of Δ KLM according to its sides ______

⋆ Type of Δ KLM according to its angles ______

b. ⋆ Type of Δ ABC according to its sides ______

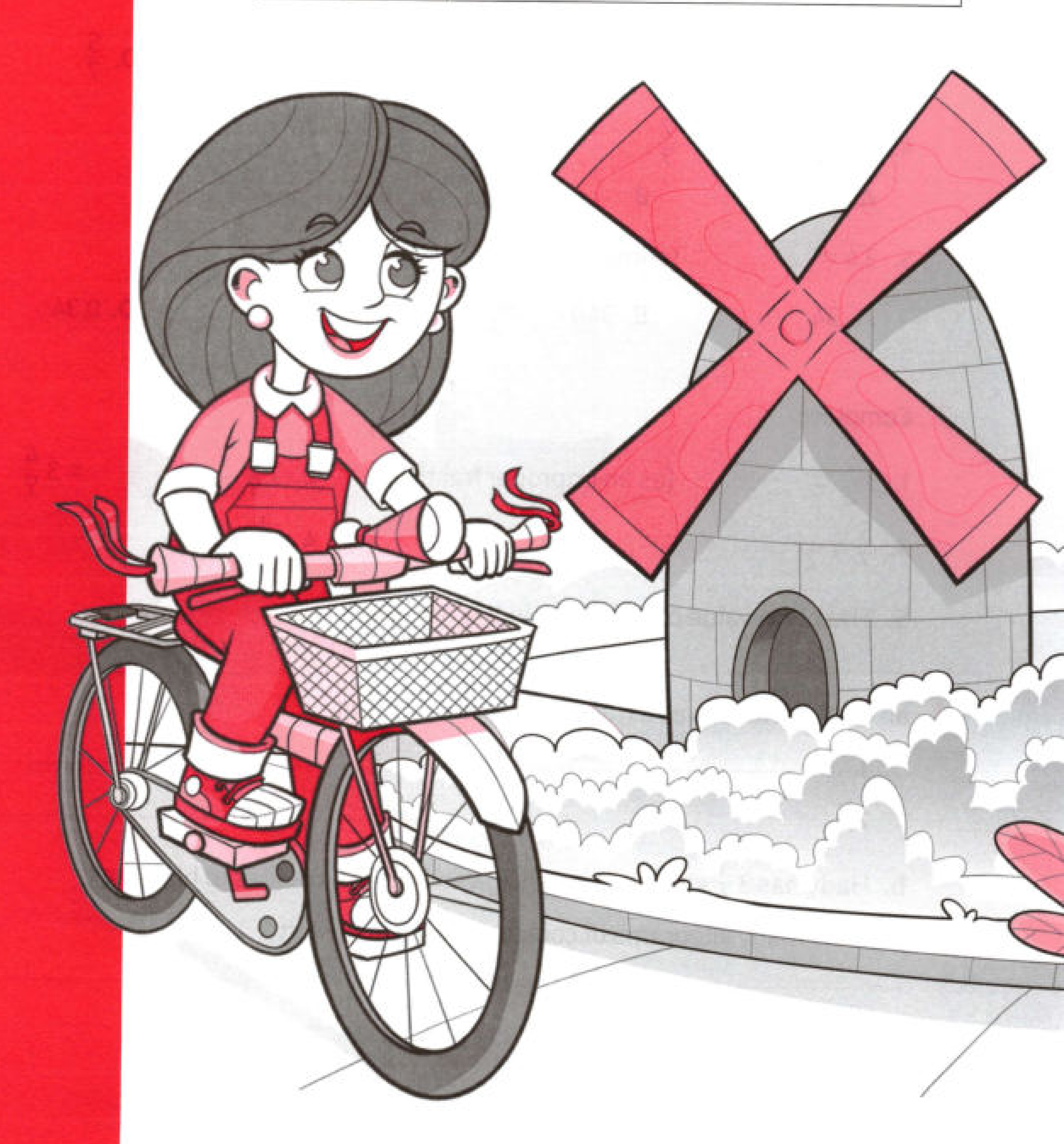
⋆ Type of Δ ABC according to its angles ______

c. ⋆ Type of Δ XYZ according to its sides ______

⋆ Type of Δ XYZ according to its angles ______

Monthly Tests

Month	Lessons
March	From lesson 1 unit 9 - to lesson 7 unit 10
April	From lesson 8 unit 10 - to lesson 4 unit 12



March Tests | Till lesson **7** unit **10**

Test 1



1. Choose the correct answer. (5 marks)

1. The value of the digit 5 in the number 16.35 is ....

   A. 0.5 B. 0.05 C. 5 D. 50

2. $\frac{4}{7} =$ ....

   A. $\frac{3}{7}+1$ B. $\frac{1}{7}+3$ C. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$ D. $\frac{3}{4}+\frac{1}{4}$

3. $5 \times \frac{1}{7} =$ ....

   A. $\frac{7}{5}$ B. $5+\frac{1}{7}$ C. $\frac{36}{7}$ D. $\frac{5}{7}$

4. $\frac{2}{5}+\frac{1}{5}$ ◯ $\frac{1}{7}+\frac{2}{7}$

   A. > B. = C. <

5. 3.4 = ... Tenths.

   A. 34 B. 340 C. 3.4 D. 0.34

2. Complete. (5 marks)

1. $3\frac{1}{2} =$ .... [as an improper fraction]
2. $7\frac{5}{9} -$ .... $= 3\frac{4}{9}$
3. $\frac{5}{7} = \frac{\quad}{21}$
4. $\frac{3}{10}+\frac{4}{10} =$ ....
5. The place value of the digit 7 in the number 3.76 is ....

3. a. Write 18 Tenths as a fraction and as a decimal. (2 marks)

1. ....
2. ....

b. Hady has $3\frac{1}{4}$ kg of cookies , he gives $2\frac{3}{4}$ kg of cookies to his sister. (3 marks)

How many kilograms of cookies does he have left ?

....

....

Total mark 15

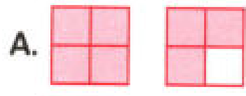
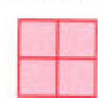
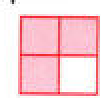
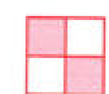
Test 2

1. Choose the correct answer. (5 marks)

1. $\frac{3}{9}+\frac{6}{9}=$ ....

   A. $\frac{3}{9}$ B. $\frac{9}{18}$ C. 1 D. $\frac{6}{9}$

2. The correct model which represents the improper fraction $\frac{5}{4}$ is ....

   A. 
   B.  
   C. 
   D.

3. Which of the following sentences is wrong ?

   A. $\frac{1}{3}>\frac{1}{4}$ B. $\frac{1}{4}>\frac{1}{5}$ C. $\frac{1}{5}<\frac{1}{6}$ D. $\frac{1}{8}<\frac{1}{7}$

4. Which of the following is greater than 1 ?

   A. $\frac{300}{100}$ B. $\frac{30}{100}$ C. $\frac{3}{10}$ D. 0.30

5. 8 = ... Hundredths.

   A. 0.08 B. 8 C. 80 D. 800

2. Complete. (5 marks)

1. 7 Ones , 9 Hundredths = ... (in standard form)
2. $\frac{2}{10}+\frac{7}{10}=$ .... (as a decimal)
3. $2+\frac{1}{7}+3+\frac{3}{7}=$ ....
4. $2-\frac{1}{3}-\frac{1}{3}=$ ....
5. $7\times\frac{1}{10}=$ .... (as a proper fraction)

3. a. Use the benchmark fractions $0 , \frac{1}{2} , 1$ to order the following fractions from least to greatest. (2 marks)

$\frac{1}{5}$, $\frac{9}{11}$, $\frac{3}{6}$

.... , ... , ...

b. Heba read for two hours. She read with her brother for $\frac{1}{2}$ hour, then she read with her sister for $\frac{1}{2}$ hour and she read alone for the rest of the time. (3 marks)

How long did she read alone ?

....

April Tests | From lesson **8** unit **10** – to lesson **4** unit **12**

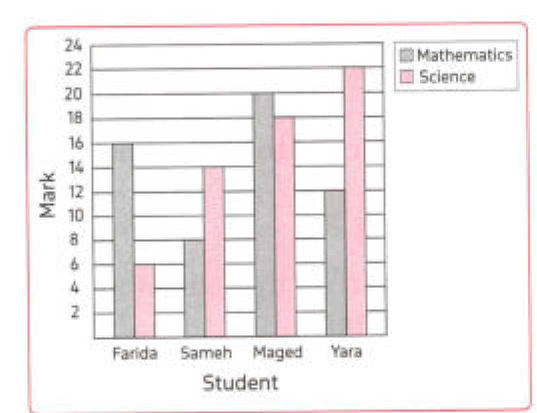


Test 1

1. Choose the correct answer. (5 marks)

1. Which of the following can be represented by a line plot ?
   - A. Our favorite movie.
   - B. Our favorite animal.
   - C. Our height.
   - D. Our favorite food.

2. The graph shows the marks of four students in Mathematics and Science. Which student got the lowest mark in Science ?

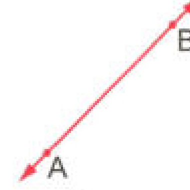


   - A. Yara.



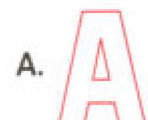
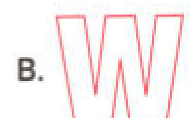
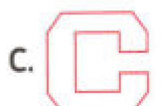
   - B. Farida.
   - C. Sameh.
   - D. Maged.

3. The opposite figure is named as ....



   - A. $\overline{AB}$
   - B. $\overleftrightarrow{AB}$
   - C. $\overrightarrow{AB}$
   - D. $\overrightarrow{BA}$

4. All the following letters has one line of symmetry except .... has more than one line of symmetry.

   A. 
   B. 
   C. 
   D. 

5. 19 Hundredths ◯ 19 Tenths.
   - A. >
   - B. <
   - C. =

2. Complete. (5 marks)

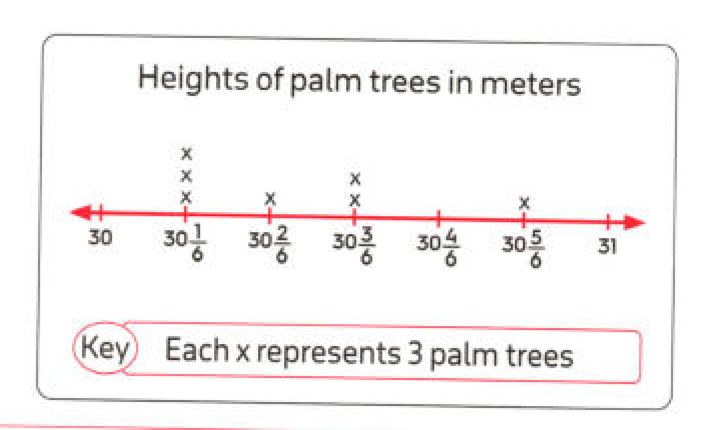
1. The two lines ⟷ (perpendicular) are ....

2. $\frac{40}{100} + \frac{5}{10} =$ ....

3. The name of ⟷ is a ....

4. 39 Tenths = ... Hundredths.

5. The opposite line plot represents the heights of some palm trees in meters, then the number of all the palm trees in this graph is ....



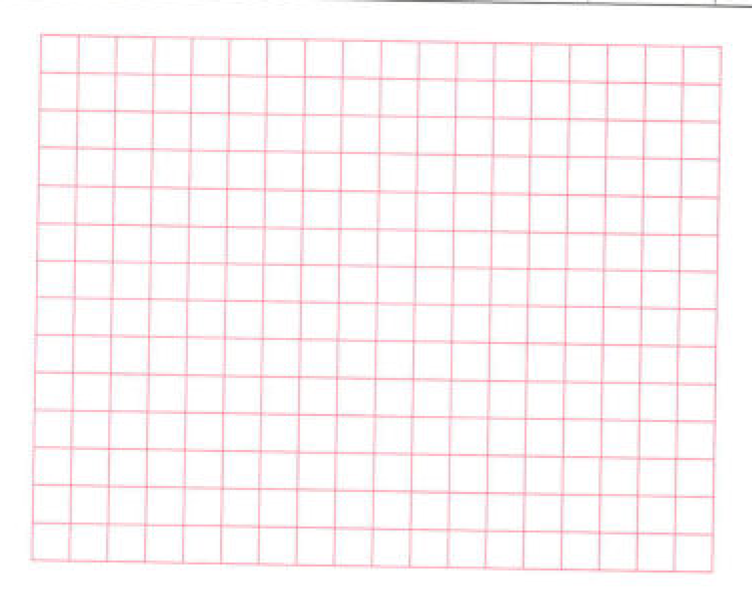
3. a. Gamal's home is 0.44 kilometer from the school, while Hany's home is $\frac{6}{10}$ kilometer form the school. Who has to walk a long distance to the school? (2 marks)

....

....

b. The following table shows the number of hours that Ayman and Nora studied in 6 days. Represent this data by using a double bar graph. (3 marks)

Pupils \ Day	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.
Ayman	3	$4\frac{1}{2}$	3	$4\frac{1}{2}$	$3\frac{1}{2}$	2
Nora	4	5	$2\frac{1}{2}$	5	$4\frac{1}{2}$	3



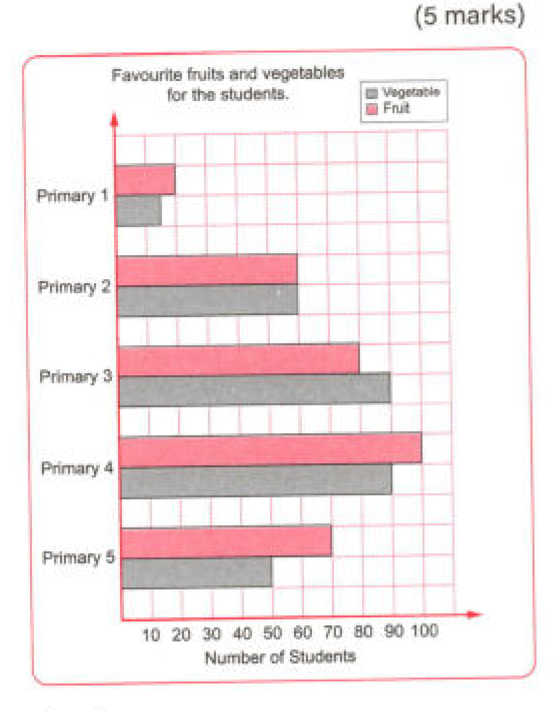
Test 2

Total mark 15

1. Choose the correct answer.

(5 marks)

1. By using the opposite graph, which grade likes vegetables more than fruits ?



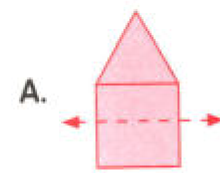
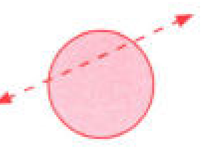
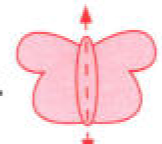
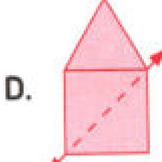
A. Primary 2

B. Primary 3

C. Primary 4

D. Primary 5

2. Which of the following figures show a line of symmetry ?

A.  B.  C.  D. 

3. The two opposite lines are ....



A. intersecting.
B. parallel.
C. perpendicular.
D. intersecting and not perpendicular.

4. $\frac{21}{100} + \frac{7}{10} =$ ....

A. $\frac{28}{1000}$
B. $\frac{28}{10}$
C. $\frac{28}{100}$
D. $\frac{91}{100}$

5. Which of the following is not true ?

A. $7.32 < 7.4$
B. $3.78 > 3.54$
C. $0.01 < 0.1$
D. $\frac{13}{10} > 3.1$

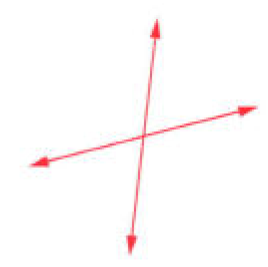
2. Complete.

(5 marks)

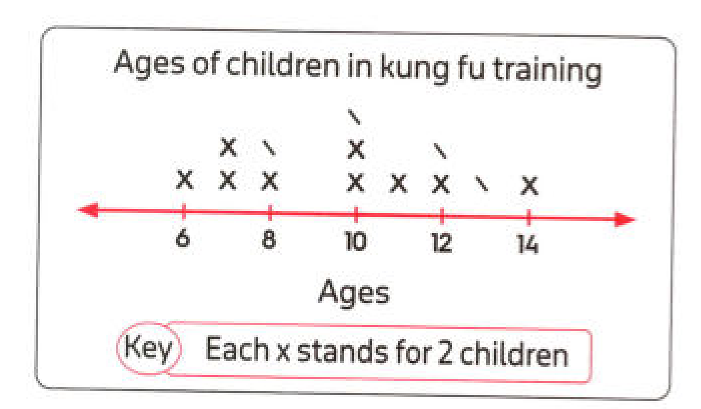
1. $\frac{2}{10} + \frac{24}{100} + \frac{6}{10} =$ .... [as an improper fraction]

2. The name of ⟷ is a ______

3. The opposite two lines are ______



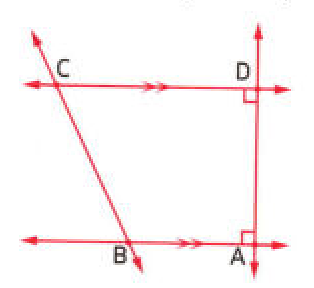
4. By using the opposite line plot, the number of children whose ages are 10 years old is ______



5. $2\frac{8}{10} = 2\frac{__}{100}$

3. a. In the opposite shape, identify : (2 marks)

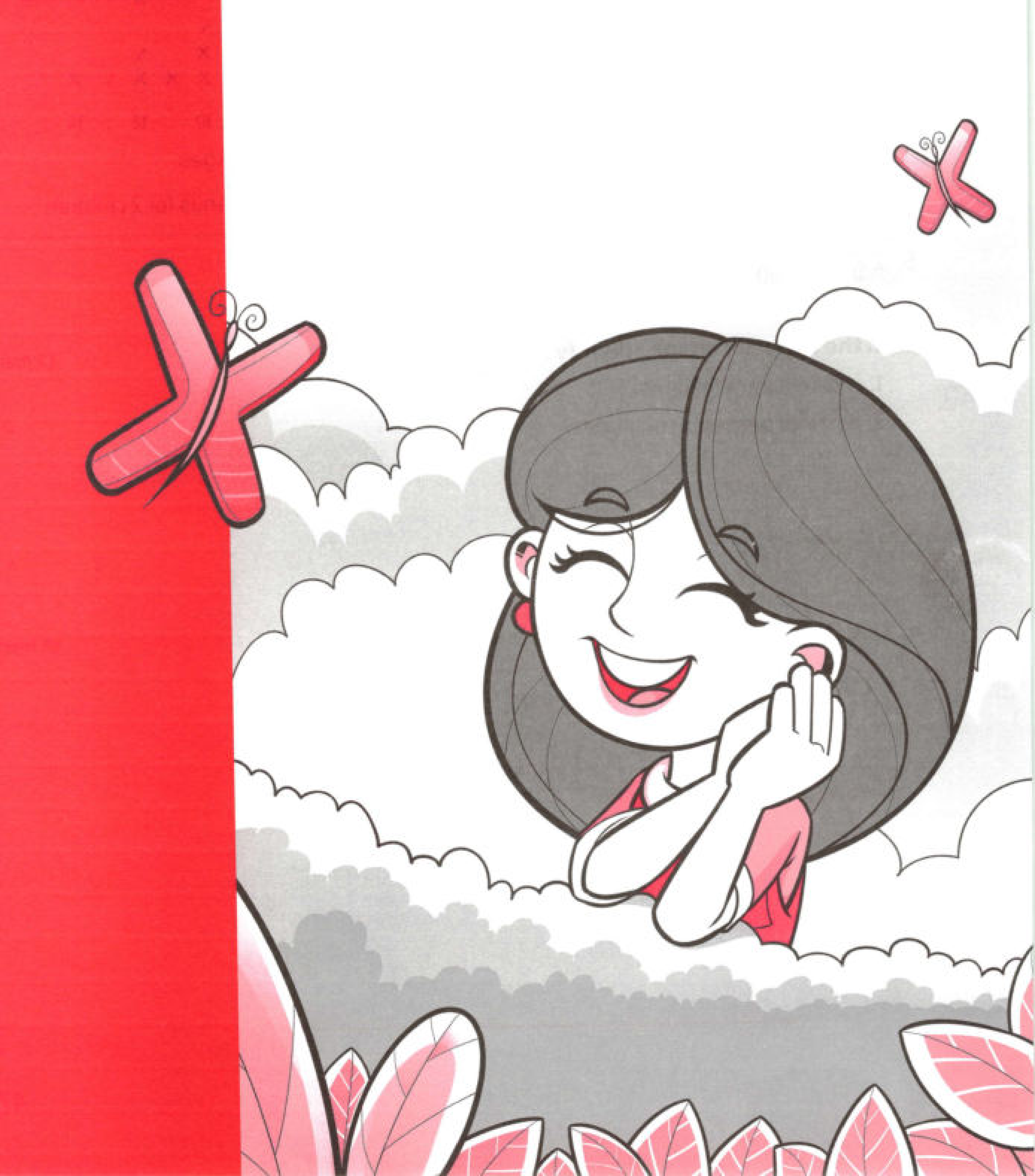
1. a pair of parallel lines. ______
2. a pair of perpendicular lines. ______



b. Use the following data to make a line plot. (3 marks)

$5\frac{1}{2}$	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
4	3	5	$5\frac{1}{2}$	$3\frac{1}{2}$	4	6	6	4	5

General Revision



General Revision On Unit 9

1. Complete.

1. The numerator of the fraction $\frac{5}{9}$ is ______ [El-Beheira 23]
2. The denominator of the fraction $\frac{7}{11}$ is ______
3. The colored parts = $\frac{\square}{\square}$ [Alex. 23]
4. $\frac{4}{5} = \frac{\square}{10}$ [Cairo 23]
5. $\frac{2}{5} = \frac{\square}{10}$ [Giza 23]
6. $\frac{1}{3} = \frac{\square}{9}$ [Aswan 23]
7. $\frac{\square}{9} = 1$ [El-Monofia 23]
8. $\frac{2}{7} + \frac{3}{7} = \frac{\square}{7}$ [El-Menia 23]
9. $\frac{1}{7} + \frac{4}{7} =$ ______ [Giza 23]
10. $1\frac{3}{4} + \frac{1}{4} =$ ______ [Aswan 23]
11. $4\frac{3}{9} + 3\frac{4}{9} =$ ______ [Cairo - Rod El Farag 23]
12. $7\frac{4}{7} - 5\frac{3}{7} =$ ______ [El-Menia 23]
13. $1 - \frac{2}{5} =$ ______ [Assiut 23]
14. $1 - \frac{4}{7} =$ ______ [El-Monofia 23]
15. $5\frac{1}{4} = \frac{\square}{\square}$ [as an improper fraction]
16. $\frac{17}{3} =$ ______ [as a mixed number] [Port Said 23]
17. $7\frac{5}{6} - 2\frac{1}{6} =$ ______ [Giza 23]
18. $5 \times \frac{1}{7} =$ ______

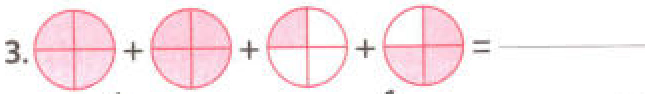
2. Choose the correct answer.

1. The unit fraction of the following is ______ [Giza 23]

   A. $\frac{2}{5}$ B. $\frac{1}{8}$ C. $\frac{9}{10}$ D. $\frac{11}{10}$

2. The numerator of the fraction $\frac{2}{5}$ is ______ [Giza 23]

   A. 1 B. 2 C. 5 D. 7

3.  = ______ [Kafr El-Sheikh 23]

A. $2\frac{1}{4}$ B. $2\frac{1}{2}$ C. $2\frac{3}{4}$ D. 3

4. $\frac{3}{8}$ = ______ [Ismailia 23]

A. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ B. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$ C. $\frac{2}{8}+1$ D. $\frac{1}{8}+2$

5. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ = ______ [Luxor 23]

A. $\frac{3}{7}$ B. $\frac{5}{12}$ C. 1 D. $\frac{3}{5}$

6. The number of sixths in one whole = ______ [Alex. 23]

A. 1 B. 5 C. 6 D. 4

7. The number of sevenths in one whole = ______ [Alex. 23]

A. 8 B. 7 C. 6 D. 5

8. Which of the following is a mixed number? ______ [Ismailia 23]

A. $\frac{3}{5}$ B. $\frac{4}{3}$ C. $3\frac{1}{2}$ D. $\frac{1}{4}$

9. $\frac{9}{5}$ is a/an ______ fraction. [El-Beheira 23]

A. unit B. proper C. denominator D. improper

10. $\frac{3}{10}$ is a/an ______ fraction. [Giza 23]

A. mixed B. improper C. whole D. proper

11. $3\frac{1}{2}$ = ______ [as an improper fraction] [Port Said 23]

A. $\frac{3}{2}$ B. $\frac{5}{2}$ C. $\frac{6}{2}$ D. $\frac{7}{2}$

12. $\frac{8}{5}$ = ______ [El-Monofia 23]

A. $3\frac{4}{5}$ B. $2\frac{1}{8}$ C. $1\frac{3}{5}$ D. $1\frac{5}{8}$

13. $\frac{21}{5}$ = ______ [as a mixed number] [Kafr El-Sheikh 23]

A. $5\frac{1}{4}$ B. $4\frac{1}{5}$ C. $2\frac{1}{5}$ D. $\frac{5}{21}$

14. $\frac{1}{4}$ ◯ $\frac{1}{3}$ [Cairo 23]

A. > B. < C. = D. otherwise

15. $\frac{7}{9}$ ◯ $\frac{5}{9}$ [Cairo - Wailli 23]

A. > B. < C. = D. otherwise

16. $\frac{3}{11}$ ◯ $\frac{3}{7}$ [El-Menia 23]

A. > B. < C. = D. otherwise

17. $2\frac{1}{8}$ is equivalent to .... [El-Monofia 23 , El-Menia 23]

A. $\frac{4}{8} - \frac{2}{8}$ B. $\frac{4}{8} + \frac{2}{8}$ C. $\frac{17}{8}$ D. $\frac{11}{8}$

18. $\frac{3}{4} = \frac{\ldots}{20}$ [El-Beheira 23]

A. 5 B. 10 C. 15 D. 20

19. $\frac{7}{8} = \frac{\ldots}{16}$ [Alex. 23]

A. 15 B. 14 C. 2 D. 7

20. $3\frac{1}{5} + \frac{4}{5} =$ .... [Giza 23]

A. $3\frac{4}{5}$ B. $5\frac{3}{4}$ C. $3\frac{5}{10}$ D. 4

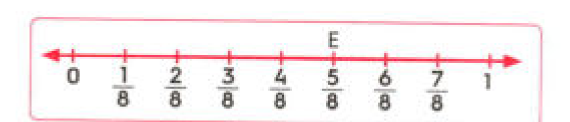
21. $5\frac{2}{7} + 4\frac{3}{7} =$ .... [Luxor 23]

A. $9\frac{5}{7}$ B. 15 C. $7\frac{3}{5}$ D. $5\frac{1}{3}$

22. $3\frac{5}{8} - 2\frac{1}{8} =$ .... [El-Monofia 23]

A. $\frac{4}{8}$ B. $2\frac{4}{8}$ C. $1\frac{6}{8}$ D. $1\frac{1}{2}$

23. How many unit fraction that represents point E ?



A. 3 B. 4 C. 5 D. 6 [Alex. 23]

24. The fraction $\frac{5}{6}$ is closed to .... [use the benchmark fraction] [Cairo 23]

A. 0 B. $\frac{8}{5}$ C. $1\frac{1}{2}$ D. 1

25. $5 \times \frac{1}{9} =$ .... [Cairo 23]

A. $\frac{9}{2}$ B. $\frac{5}{9}$ C. $\frac{9}{5}$ D. $1\frac{5}{9}$

26. $5 \times \frac{1}{7} =$ .... [El-Beheira 23]

A. $5\frac{1}{7}$ B. $\frac{5}{7}$ C. $\frac{51}{7}$ D. $\frac{36}{7}$

27. $\frac{7}{12}$ is closer to the benchmark fraction ....

A. 1 B. $\frac{1}{2}$ C. $\frac{1}{4}$ D. 0

3. Answer each of the following.

1. Nabil had $2\frac{4}{5}$ cakes. He gave $1\frac{1}{5}$ to his sister. How many cakes did left with him ?
[Alex. 23]

2. Zain drank $1\frac{3}{8}$ liters of water , and Hamza drank $1\frac{5}{8}$ liters of water , what did the total liters of water that Zain and Hamza drink ?
[Giza 23]

3. Bader bought $1\frac{1}{2}$ kg of sugar and $2\frac{1}{2}$ kg of flour. How many kg did he buy ? [Alex. 23]

4. Sara has $6\frac{4}{5}$ cakes , she gaves $3\frac{1}{5}$ to her brother. How many cakes does left with her ?
[Luxor 23]

5. How many sevenths in the number 3 ? [Cairo 23]

6. Youssef has 18 apples. Two third of the apple are red.
How many apples are red ?
The red apples = ______ [Cairo 23]

7. Order the following fractions in an ascending order.
$\frac{3}{5}$, $\frac{3}{10}$, $\frac{3}{4}$, $\frac{3}{9}$, $\frac{3}{7}$ [Aswan 23]

8. Arrange in ascending order : $\frac{5}{10}$, $\frac{1}{6}$, $\frac{8}{9}$ [Cairo 23]
The order is : ______ , ______ , ______

General Revision On Unit 10

1. Complete.

1. The place value of 7 in the number 3.67 is ________ [El-Monofia 23]
2. The place value of the digit 6 in the number 2.65 is ________ [Cairo 23]
3. The value of 5 in the number 7.85 is ________ [El-Menia 23]
4. The value of digit 3 in 24.32 is ________ [El-Beheira 23]
5. The value of the digit 6 in the number 2.65 is ________ [Port Said 23]
6. $3\frac{3}{100}$ = ________ [as a decimal] [Kafr El-Sheikh 23]
7. 0.07 = ________ [as a fraction] [Cairo 23]
8. 6 tens and 8 tenths = ________ [Cairo 23]
9. The standard form of : 8 Ones , 5 Tenths and 7 Hundredths is ________ [Alex. 23]
10. The standard form of : 2 Ones , 1 Tenth , 9 Hundredths = ________ [Port Said 23]
11. 2 + 0.1 + 0.03 = ________ [in the standard form] [Cairo 23]
12. 3.2 = ________ + 0.2 [El-Monofia 23]
13. 60.57 = ________ + ________ + ________ [in expanded form] [El-Menia 23]
14. 6.17 = ________ + ________ + ________ [in expanded form] [El-Beheira 23]
15. 3 + 0.3 + 0.03 = ________ [El-Monofia 23]
16. 12.08 is ________ [as words form] [Cairo 23]
17. 2.4 = ________ Tenths. [El-Menia 23]
18. $\frac{3}{10} + \frac{20}{100}$ = ________ [Cairo 23]
19. $2\frac{3}{10} + 4\frac{5}{100}$ = ________ [Cairo 23]
20. $\frac{4}{10} + \frac{5}{100}$ = ________ [Cairo 23]
21. $\frac{3}{10} - \frac{17}{100}$ = ________ [Cairo 23]

2. Choose the correct answer.

1. The place value of digit 5 in 12.25 is ________ [El-Beheira 23]

   A. 0.5 B. 0.05 C. Tenths D. Hundredths

2. The digit 4 in the number 13.47 is in ________ place. [El-Monofia 23]

   A. Once B. Tens C. Tenth D. Hundredth

3. In the number 34.68 , which digit is in the Tenths place ? [Cairo 23]

A. 3 B. 4 C. 6 D. 8

4. The value of the digit 5 in the number 3.45 is ______ [Cairo 23]

A. 5 B. 0.5 C. 0.05 D. 50

5. $\frac{3}{10}$ [as a decimal] = ______ [Cairo 23]

A. 0.3 B. 10.3 C. 3.01 D. 3.1

6. $\frac{15}{10}$ = ______ [Alex. 23]

A. 1.5 B. 0.15 C. 10.5 D. 1.05

7. $\frac{25}{10}$ = ______ [Alex. 23]

A. 25 B. 2.5 C. 0.25 D. 2.05

8. The decimal represents the colored parts [10-part strip, 3 parts colored] is ______ [Cairo 23]

A. 0.3 B. 0.6 C. 0.7 D. 1

9. 4.79 = ______ [Port Said 23]

A. $4\frac{79}{100}$ B. $4\frac{79}{10}$ C. $79\frac{4}{100}$ D. $79\frac{4}{10}$

10. 0.4 is equal to ______ [Alex. 23]

A. 0.04 B. $\frac{40}{10}$ C. 0.40 D. $\frac{4}{100}$

11. 4 + 0.2 + 0.03 = ______ [Port Said 23]

A. 4.23 B. 3.24 C. 2.43 D. 4.32

12. 3 + 0.3 + 0.03 = ______ [Giza 23]

A. 0.33 B. 3.3 C. 3.33 D. 33.3

13. 4 Ones , 6 Tenths , 2 Hundredths = ______ [El-Menia 23]

A. 6.42 B. 2.46 C. 4.62 D. 2.64

14. 71 Hundredths = ______ [Cairo 23]

A. $\frac{1}{7}$ B. $\frac{17}{10}$ C. $\frac{71}{10}$ D. 0.71

15. Five Tenths = ______ [El-Menia 23]

A. 5,000 B. 0.5 C. 0.05 D. 5.05

16. Three Tenths = ______ [El-Beheira 23]

A. 0.03 B. 0.3 C. 0.003 D. $\frac{30}{10}$

17. 5.5 = ______ Tenths. [El-Monofia 23]

A. 55 B. 0.5 C. 5 D. 0.55

18. 0.4 ◯ 0.34 [Alex. 23 , Port Said 23]

A. < B. = C. > D. ≤

19. 0.6 ◯ 0.59 [El-Beheira 23]

A. < B. > C. = D. ≤

20. 4.5 ◯ 4.51 [Luxor 23]

A. < B. > C. =

21. 2.5 ◯ 2.58 [Port Said 23]

A. < B. > C. = D. otherwise

22. 50.02 ◯ 20.05 [Alex. 23]

A. > B. = C. < D. otherwise

23. 1.03 ◯ 5.7 [El-Monofia 23]

A. < B. = C. > D. ≤

24. 7 Tenths ◯ $\frac{17}{100}$ [Alex. 23]

A. ≤ B. > C. = D. <

25. 0.7 ◯ 7 Tenths [Kafr El-Sheikh 23]

A. > B. < C. = D. ≤

26. 0.9 < ______ [Alex. 23]

A. 0.7 B. 0.15 C. 0.8 D. 1.2

27. Which is correct statement ? [El-Monofia 23]

A. 8.03 = 8.3 B. 5.3 < 5.14 C. 74.8 < 7.48 D. 0.55 > 0.52

28. Which of the following sentences is wrong ? [El-Beheira 23]

A. 0.34 < 0.4 B. 0.45 > 0.04 C. 0.23 < 0.3 D. 0.54 = 0.45

29. $\frac{9}{10} = \frac{90}{__}$ [Cairo 23]

A. 10 B. 100 C. 9 D. 90

30. $3\frac{2}{10} = 3\frac{__}{100}$ [Cairo 23]

A. 2.000 B. 200 C. 20 D. 2

31. $\frac{4}{10} + \frac{2}{100} =$ .... [Cairo 23]

A. $\frac{6}{100}$ B. $\frac{42}{100}$ C. $\frac{60}{100}$ D. $\frac{6}{10}$

3. Answer each of the following.

1. Write the standard form for : $4 + 0.7 + 0.009$ [Cairo 23]

....

2. A tree of length 37 Tenths meters , express the length as a decimal number , and what is the number in Hundredths ? [Cairo 23]

....

3. Hana bought a pizza pie and divided into 10 equal portions , she gave Soha 0.3 of the pizza and gave Nora 0.5 of the pizza. What decimal is the remainder ? [Cairo 23]

....

4. Renad had $\frac{7}{10}$ meter of cloth , she went to the shop and bought $\frac{35}{100}$ meter of cloth. How many meters of cloth did she have ? [Giza 23]

....

5. Hana bought a piece of cloth of length $\frac{7}{10}$ meter and Mona bought another piece of length $\frac{13}{100}$ meter. What is the total length of the two pieces ? [Cairo 23]

....

....

6. Mina walked $\frac{5}{10}$ kilometer , then he walked another $\frac{35}{100}$ kilometer. How long did Mina walk altogether [fraction and decimal] ? [Cairo 23]

....

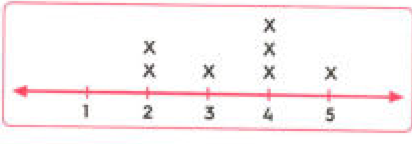
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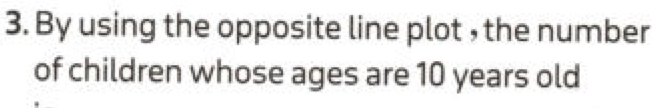
General Revision On Unit 11

1. Complete.

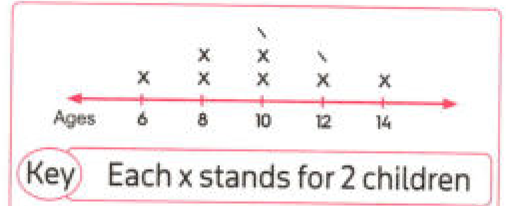
1. Representing data by ________ is the suitable to compare between two sets on the same graph. [Cairo 23]

2. The most occurred number in the opposite line plot is ________ [Cairo 23]





3. By using the opposite line plot , the number of children whose ages are 10 years old is ________ [Aswan 23]



4. By using the opposite graph :

   a. How many boys prefer swimming ?

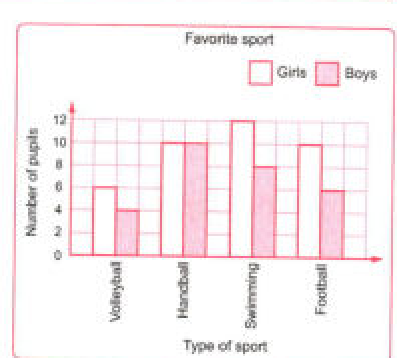
   ____

   b. How many girls prefer volleyball ?

   ____

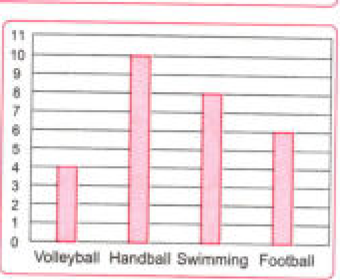


[Kafr El-Sheikh 23 , Cairo 23]



5. Look at the bar chart and answer :

Sport / Pupils	Volleyball	Handball	Swimming	Football
Boys	4	___	___	___



   a. Complete the table.

   b. Which sports has the lowest number of student ? [El-Beheira 23]

   ____

6. By using the opposite graph , answer the following questions :

   a. Complete the table.

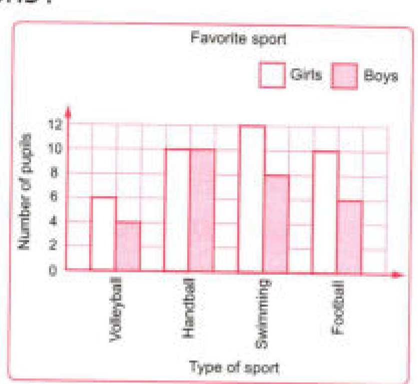
Sport / Pupils	Volleyball	Handball	Swimming	Football
Boys	4	___	___	___
Girls	___	___	___	10

   b. How many boys prefer swimming ?

   ____

   c. How many girls prefer volleyball ?

   ____



[Port Said 23]

7. The opposite table represent the favorite color of some students :

a. What is the most favourite color ?

____

b. What is the number of student who liked red and white ?

____

The favourite color	
Color	Number
Red	12
Yellow	18
Black	4
White	11
Green	9

[Ismailia 23]

2. Choose the correct answer.

1. The opposite graph represents ________ [Giza 23]

A. a bar graph.

B. a double bar graph.

C. a line plot.

D. a pictograph.

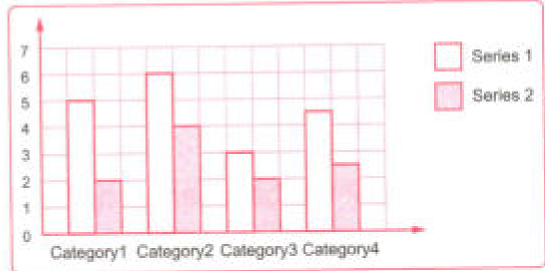
2. The opposite graph shows a ________ [Luxor 23]

A. line plot

B. bar graph

C. pie chart

D. double bar graph



3. Which type of graphs is suitable for the opposite data ? [El-Beheira 23]

Name	Ahmed	Nora	Sally	Ola
Age	13	17	15	10

A. A line plot

B. A bar graph

C. A double bar graph

4. To compare between maximum and minimum temperature , we use a ________ [El-Beheira 23]

A. picture representation
B. bar graph
C. line plot graph
D. double bar graph

5. To compare between rainfall in the desert of Africa in the years 2020 and 2022 , we use a ________ [Port Said 23]

A. picture representation
B. bar graph
C. line plot graph
D. double bar graph

6. To compare between marks of Hani and Nada , we use a ________ [El-Menia 23]

A. picture representation
B. bar graph
C. line plot graph
D. double bar graph

7. The vertical and the horizontal rays on the graph are called ______ [Alex. 23]

A. labels B. key C. axes D. title

8. By using the opposite line plot, the number of children whose ages 10 years old is ______ [Souhag 23]

A. 22 B. 5

C. 3 D. 15

Key: Each x = 2 children

9. Data can be represented by ______ [Alex. 23]

A. bars B. measure angle C. triangle drawing D. otherwise

10. From the following graph :

a. Which grade has the same number of students who like fruits and vegetable ? [Assiut 23]

A. Primary 2 B. Primary 3

C. Primary 4 D. Primary 5

b. What is the total number of the students who like vegetables and fruits in grade 4 ?

A. 30 B. 120

C. 170 D. 190

c. Which grade likes vegetables more than fruits ? [Assiut 23, Port Said 23]

A. Primary 1 B. Primary 2

C. Primary 3 D. Primary 4

Favourite fruits and vegetables for the students.

Vegetable
Fruit
Primary 1
Primary 2
Primary 3
Primary 4
Primary 5
0 10 20 30 40 50 60 70 80 90 100
Number of Students

11. To show types of pets that some people have at home, we don't use ______ [Cairo 23]

A. a line plot B. a bar graph

C. a double bar graph D. a pictograph

12. To put things together have the same property, we use ______ [Cairo 23]

A. a line plot B. a bar graph

C. a double bar graph D. a Venn diagram

13. Which of the following can be represented by a double bar graph ? [Cairo 23]

A. Favorite animals. B. Makrs of friends in Math.

C. Makrs of friends in Math and Arabic. D. Our heights.

14. The following table can be represented by ______ [Cairo 23]

A. a line plot

B. a bar graph

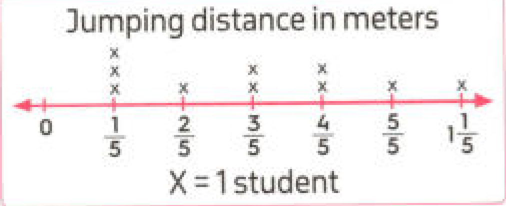
C. a double bar graph

Subject	Arabic	English	Math	Science
Bassem	30	35	39	33
Mone	25	40	37	38

15. A double bar graph is used to display ______ of data on a graph. [Cairo 23]

A. 1 group B. 2 groups C. 3 groups D. 4 groups

16. a. In the opposite line plot of jumping students : What is the number of students who jumped $\frac{3}{5}$ and more ? [Cairo 23]



A. 1 B. 3

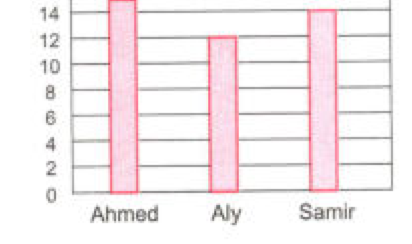
C. 6 D. 9

b. In the previous example , the number which is most repeated is ______

A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. $\frac{4}{5}$

3. Answer each of the following.

1. In the graph : No. of pages of a book read by Ahmed , Aly and Samir , answer the following :



a. Who read more than Samir ?



b. Who read the least pages ?

______

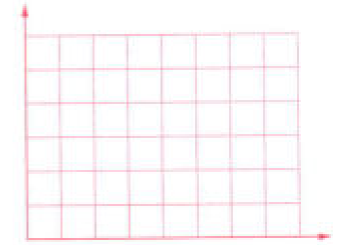
c. How many pages were read by all ?

______

d. Find the difference between Ahmed and Aly. [Cairo 23]

______

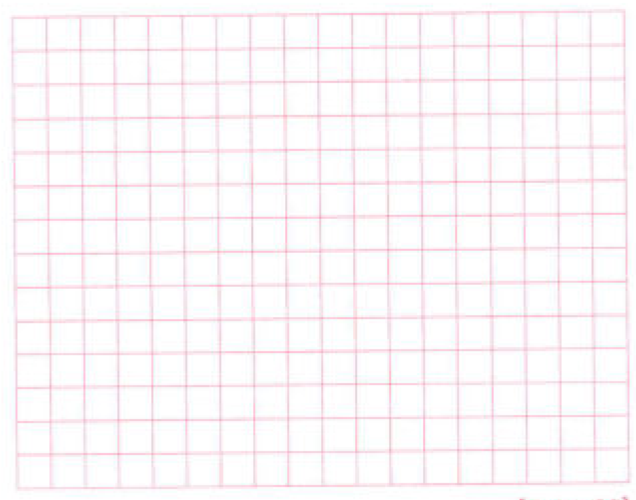
2. The following table shows number of liters Nour drank during some days of the week. Represent data by a bar graph. [Alex. 23]



Days	Saturday	Sunday	Monday
Liters	$1\frac{1}{2}$	2	3

3. Represent the following data by bars :

Student	Distance in meters
Tahani	$\frac{3}{4}$
Salah	$2\frac{1}{4}$
Ziad	$\frac{1}{2}$
Waleed	$1\frac{1}{2}$



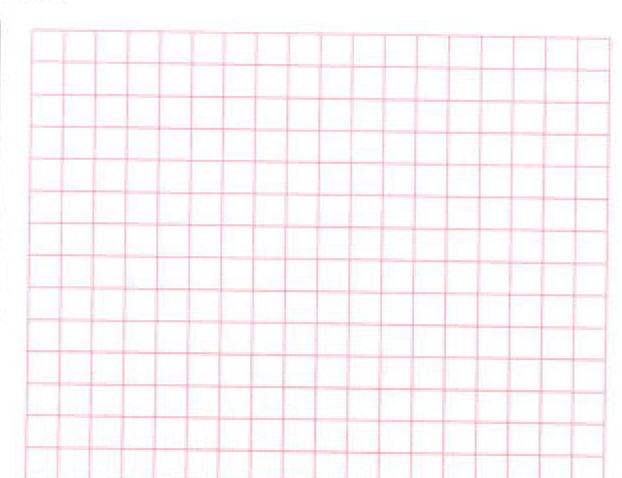
[Cairo 23]

4. Use the following data to make a line plot.

$5\frac{1}{2}$	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
4	3	5	$5\frac{1}{2}$	$3\frac{1}{2}$	4	6	6	4	5

5. Giovanni made a table to show the marks for two teams, the goldenrods, and the opponents team in the first three exams. What type of graph would be most appropriate for Giovanni to use to display these data? Explain.

Marks Scored in Each Exam			
Team	Exam 1	Exam 2	Exam 3
Goldenrods	$30\frac{1}{2}$	$31\frac{1}{4}$	$31\frac{1}{2}$
Opponents	$32\frac{1}{4}$	$30\frac{1}{2}$	$31\frac{1}{4}$



Represent these data by this type of graph, then answer the following questions.

a. Which team has got the highest score in Exam 3?

b. Which team has got the lowest score in Exam 1?

c. What is the difference between the highest and lowest score in Exam 2?

d. What is the sum of the highest and lowest score in Exam 3?

General Revision On Unit 12

1. Complete.

1. The opposite figure is named as .... X Y [Port Said 23]
2. The name of ⟶ is .... [Alex. 23]
3. The two lines are .... [El-Menia 23]
4. The following two lines are .... lines. [Luxor 23]
5. The two lines which never intersect must be .... [Cairo 23]
6. Number of points of intersection of two parallel lines = ... [Cairo 23]
7. The opposite figure represents .... angle. [Luxor 23]
8. The opposite figure shows .... angle. C B A [Alex. 23]
9. The opposite angle is .... angle. [Port Said 23]
10. The measure of .... angle is less than the measure of a right angle. [Giza 23]
11. The triangle with equal sides is called .... triangle. [El-Menia 23]
12. Any triangle has at least .... acute angles. [Cairo 23]
13. The .... triangle has three equal sides. [Alex. 23 , El-Beheira 23]
14. A triangle whose side lengths are 8 cm , 8 cm and .... cm is an equilateral triangle. [Cairo 23]
15. The opposite figure is .... triangle according to its angles. [Cairo 23]
16. All of the following △ , ▭ , ▱ , □ are quadrilateral except .... [Assiut 23]
17. The square has .... right angles. [El-Monofia 23]
18. The number of the right angles in the figure ▭ = ... [Giza 23]
19. The rectangle has .... right angles. [Luxor 23]
20. .... has only one pair of parallel sides. [El-Menia 23]

2. Choose the correct answer.

1. The opposite figure called a ________ [El-Monofia 23]

   A. straight line B. line segment C. ray D. point

2. The opposite figure named as ________ [Kafr El-Sheikh 23]

   A. $\overline{AC}$ B. $\overleftrightarrow{AC}$ C. $\overrightarrow{AC}$ D. $\overrightarrow{CA}$

3. The name of the opposite figure is ________

   A. $\overline{AB}$ B. $\overrightarrow{AB}$
   C. $\overleftrightarrow{AB}$ D. $\overrightarrow{BA}$

   [Luxor 23]

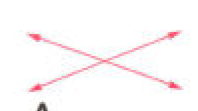
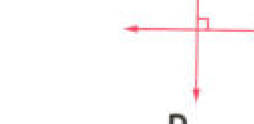
4. The two opposite lines are ________ [El-Menia 23]

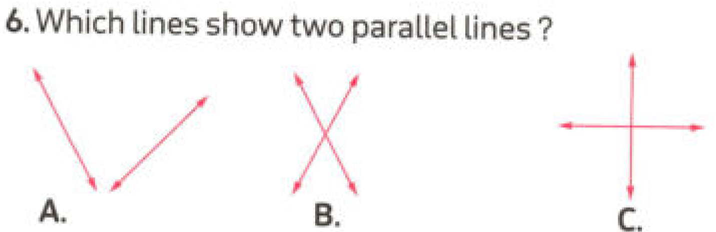
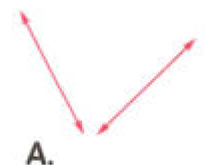
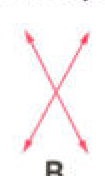
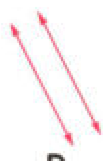
   A. intersecting. B. parallel.
   C. perpendicular. D. intersecting and not perpendicular.

5. Which lines show two perpendicular lines ? [El-Beheira 23]

   
   A.
   
   B.
   
   C.
   
   D.

6. Which lines show two parallel lines ? [Cairo 23]

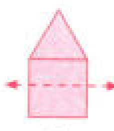
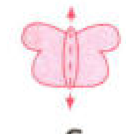
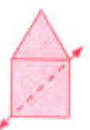
   
   
   A.
   
   B.
   C.
   
   D.

7. The opposite figure represents ________ lines.

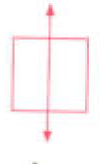
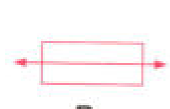
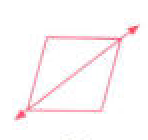
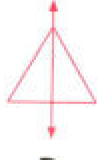
   A. intersecting B. perpendicular
   C. parallel D. otherwise

   [Cairo 23]

8. Which of the following figures show a line of symmetry ? [Alex. 23]

   
   
   A.
   
   B.
   
   C.
   
   D.

9. All the following figure show a line of symmetry except ________ [Cairo 23]

   
   A.
   
   B.
   
   C.
   
   D.

10. ―――――― angle is less than right angle in measure. [Giza 23]

A. An acute B. An obtuse C. A straight D. A right

11. The opposite figure shows ―――――― angle. [Kafr El-Sheikh 23]

A. an acute B. a right

C. an obtuse D. a straight

12. Which figure shows an acute angle? [Cairo 23]

A. B. C. D.

13. The measure of an acute angle ―――――― the measure of a right angle. [Cairo 23]

A. greater than B. less than C. equal D. a and c

14. The opposite triangle is ―――――― triangle. [Cairo 23]

A. an acute B. a right

C. an obtuse D. a straight

15. The ―――――― triangle has three different side lengths. [Port Said 23]

A. equilateral B. scalene C. isosceles D. right

16. Any triangle has ―――――― acute angles at least. [Alex. 23]

A. 1 B. 2 C. 3 D. 4

17. The opposite triangle is ―――――― triangle. [El-Monofia 23]

A. an acute B. an obtuse

C. a right D. a straight

18. The type of the opposite triangle is ―――――― angled triangle. [Alex. 23]

A. a right B. an acute

C. a scalene D. an obtuse

19. The triangle which all sides are equal in length is called a/an ―――――― triangle. [Alex. 23]

A. isosceles B. equilateral C. scalene D. right

20. Triangle whose side lengths are (4 cm , 4 cm and 4 cm) is called ―――――― triangle. [El-Beheira 23]

A. an equilateral B. an isosceles C. a scalene D. a right-angled

21. The right-angle triangle has ________ right angle[s]. [Luxor 23]
A. 5 B. 4 C. 9 D. 1

22. All angles in the equilateral triangle are ________ [Giza 23]
A. right B. acute C. obtuse D. straight

23. The polygon which has 5 sides in called ________ [Cairo 23]
A. a quadrilateral B. a pentagon C. a hexagon D. an octagon

24. The quadrilateral which has four right angles and four equal sides is ________ [Giza 23]
A. a rhombus B. a square C. a rectangle D. a triangle

25. The square has ________ right angle[s]. [El-Beheira 23]
A. 1 B. 2 C. 3 D. 4

26. The ________ is a parallelogram with 4 right angles. [El-Monofia 23]
A. rectangle B. rhombus C. square D. trapezium

27. The parallelogram which has 4 equal sides is a ________ [Alex. 23]
A. trapezium B. rectangle C. triangle D. rhombus

28. A ________ is a quadrilateral with one pair of parallel sides and the sides aren't equal. [El-Monofia 23]
A. trapezium B. rectangle C. square D. rhombus

29. The rhombus has ________ equal side[s]. [Kafr El-Sheikh 23]
A. 1 B. 2 C. 3 D. 4

3. Answer each of the following.

1. Draw the straight line $\overleftrightarrow{AB}$ is perpendicular to $\overline{XY}$ [Cairo 23]

X Y

2. Draw a line segment XY. [Cairo 23]

3. Hala is making a design using a quadrilateral that has 4 equal sides and 4 right angles. What is Hala using ? Draw the design.

4. From the opposite figure :

C A D B

Identify :

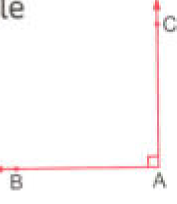
a. A pair of parallel line segments.

b. A pair of perpendicular line segments.

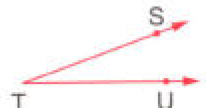
General Revision On Unit 13

1. Complete.

1. The measure of the central angle which represents $\frac{1}{4}$ of the circle is .... [El-Monofia 23]
2. The measure of the straight angle is .... ° [Alex. 23]
3. The angle with measures equal 120° is .... angle. [Alex. 23]
4. The measure of the right angle = ... ° [Port Said 23]
5. $\frac{1}{4}$ of the opposite circle measured .... ° [Alex. 23]
6. An angle with measures 65° is a/an .... angle. [Cairo 23]
7. In the triangle NCF , NC = 6 cm , CF = 8 cm and NF = 10 cm , then it is a/an .... triangle. [Cairo 23]
8. The $\frac{5}{12}$ of the circle represents with .... angle. [Cairo 23]
9. We use .... to measure angle. [Cairo 23]
10. The two sides of the opposite angle are .... and ....



11. An obtuse angle measures between .... and ....
12. The opposite angle named as .... , ... and ....



13. An acute angle measures between 90° and .... °
14. The $\frac{6}{12}$ of the circle represents with .... angle.

2. Choose the correct answer.

1. .... is an acute angle. [Cairo 23]
   A. 70° B. 105° C. 90° D. 179°
2. The angle of measure 75° is a/an .... angle. [Ismailia 23]
   A. acute B. right C. obtuse D. straight
3. 35° is .... angle. [El-Monofia 23]
   A. an acute B. an obtuse C. a right D. a straight
4. The measure of the right angle = ... ° [El-Menia 23]
   A. 90 B. 30 C. 200 D. 180

5. ________ angle measures between 90° and 180° [Cairo 23]

A. An acute B. An obtuse C. A right D. A straight

6. The angle of measure 90° is called ________ angle. [Giza 23]

A. a right B. an obtuse C. an acute D. a straight

7. ________ angle measures 180° [El-Beheira 23]

A. An acute B. A right C. An obtuse D. A straight

8. The measure of the straight angle = ________ degrees. [El-Beheira 23]

A. 30 B. 60 C. 90 D. 180

9. The ________ is formed by two rays that have the same endpoint. [Cairo 23]

A. point B. side C. angle D. vertex

10. The name of the opposite angle is ________ [Cairo 23]

A. ∠ CAB

B. ∠ CBA

C. ∠ BAC

D. ∠ ACB

C
B A

11. Which angle is named as angle DEF ? [Cairo 23]

A. D E F B. E F D C. D F E D. F D E

12. The related fraction to the angle of measure 180° is ________ of the circle. [Alex. 23]

A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$

13. The angle with measures 50° is ________ [Giza 23]

A. a right B. an acute C. an obtuse D. a straight

14. An/A ________ angle is greater than 90° and smaller than 180° [Kafr El-Sheikh 23]

A. acute B. right C. obtuse D. straight

15. The triangle whose measure of one of its angle is 120° is called a/an ________ triangle. [Cairo 23]

A. acute-angled B. right-angled C. obtuse-angled D. equilateral-angled

16. The angle with measures 170° is a/an ________ [Cairo 23]

A. acute B. right C. obtuse D. straight

17. The angle with measures 80° is ________ angle. [El-Beheira 23]

A. an obtuse B. a right C. an acute D. a straight

18. The triangle of side lengths 9 cm , 7 cm and 9 cm is .... [Cairo 23]

A. an equilateral B. a scalene C. an isosceles D. otherwise

19. In triangle XYZ , m (∠ X) = 40° , m (∠ Y) = 40° and m (∠ Z) = 100° , then it is called .... triangle. [Cairo 23]

A. an acute B. a right C. an obtuse D. a scalene

20. The triangle whose side lengths are 6 cm , 6 cm and 6 cm is called .... [Cairo 23]

A. a scalene B. an isoscles

C. an equilateral D. information not enough to decide

21. Number of degrees of the circle is .... [Cairo 23]

A. 180° B. 270° C. 360° D. 450°

22. The triangle of side lengths 4 cm , 6 cm and 6 cm is called .... [Cairo 23]

A. an equilateral B. an isosceles C. a scalene D. otherwise

3. Answer each of the following.

1. By using the protractor , draw the angle with measure 60° , then determine its type [Cairo 23]

2. Draw an angle of measure 80°. [Cairo 23 , Giza 23]

3. Draw an angle of measure 110° [Cairo 23]

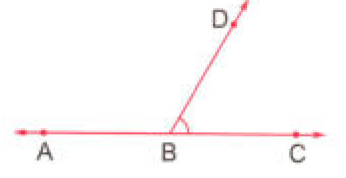
4. Use your protractor to draw ∠ ABC of measure 70° [Cairo 23]

5. **Draw the following angles** : 90°

6. Draw ∠ ABC with measure of 30° and classify by its type.

The opposite angle is ________ angle. → [Cairo 23]

7. Complete :

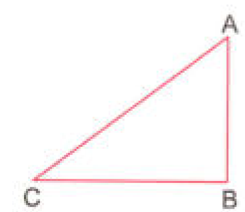


a. ∠ ________ is an acute angle.

b. ∠ ________ is an obtuse angle. [Cairo 23]

8. By using your geometric instruments [The ruler and protractor] :

Determine the type of each of the following triangles.

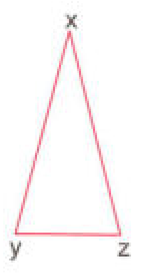




a. • Type of Δ ABC according to its sides ________



• Type of Δ ABC according to its angles ________

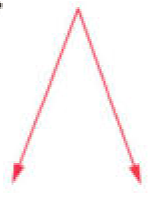


b. • Type of Δ XYZ according to its sides ________

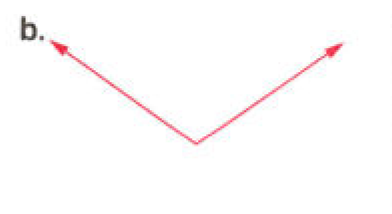
• Type of Δ XYZ according to its angles ________

9. Measure each of the following angles , then classify each angle by its type.

a.



b.



c.



Directorates Exams



1 Cairo Governorate



St. Joseph Maronite schools
El Waily Education

1. Choose the correct answer.

1. .... is a measure of an acute angle.

A. 179° B. 120° C. 90° D. 70°

2. The colored part in the opposite figure represents an angle of measure .... °

A. 270 B. 240
C. 120 D. 40



3. $\frac{7}{12}$ is closer to benchmark fraction ....

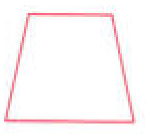
A. $1\frac{1}{2}$ B. 1 C. $\frac{1}{2}$ D. 0

4. If $\frac{12}{X} = \frac{2}{3}$, then X = ...

A. 20 B. 14 C. 18 D. 13



5. The following trapezium has .... obtuse angle(s).



A. 4 B. 3 C. 2 D. 1

6. The two perpendicular lines are ....

A. parallel. B. acute angled. C. intersecting. D. straight angles.

7. Which fraction of the following equals 1 ?

A. $\frac{1}{10}$ B. $\frac{10}{10}$ C. $\frac{2}{10}$ D. $\frac{25}{10}$

2. Complete.

1. 2.3 = ... Hundredths.
2. The fraction $\frac{5}{12}$ makes an angle of measure .... ° from the circle.
3. The angle of measure 180° makes a fraction .... of the circle.
4. The .... triangle has no equal sides.
5. $3\frac{1}{5}$ = ... (as an improper fraction)
6. $20\frac{3}{8} + 5\frac{3}{8}$ = ...
7. $\frac{7}{9} = \frac{1}{9} + \frac{\ldots}{9} + \frac{\ldots}{9}$
8. In Δ ABC, if AB = AC = 3 cm and BC = 4 cm, then it's .... triangle.

3. **Choose the correct answer.**

1. $\frac{1}{10} + \frac{20}{100} =$ ....

   A. $\frac{30}{100}$ B. $\frac{21}{10}$ C. $\frac{30}{10}$ D. $\frac{21}{100}$

2. $70 + 5 + 0.6 + 0.03 =$ .... [in a standard form]

   A. 75.36 B. 75.63 C. 7.563 D. 705.36

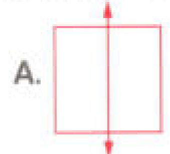
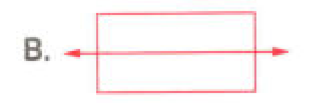
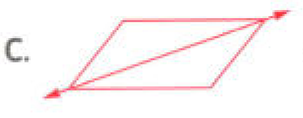
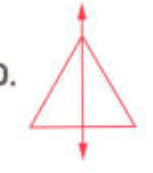
3. 0.25 ☐ 0.3

   A. > B. < C. = D. otherwise

4. $\frac{48}{10} =$ .... [as a decimal]

   A. 48.0 B. 4.8 C. 0.48 D. 480

5. All the following figures show a line of symmetry except ....

   A.  B.  C.  D. 

6. Any triangle has at least .... acute angle(s).

   A. 3 B. 2 C. 1 D. 0

7. $5\frac{4}{10}$ is equivalent to ....

   A. 540 B. $\frac{54}{100}$ C. 0.54 D. 5.4

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4. **Answer the following.**

1. Draw ∠ ABC of measure 110° and determine its type.

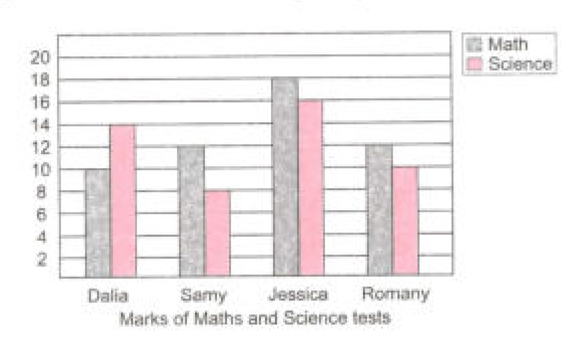
   Type : ....

2. Amira bought 1.4 kg of tomatoes. Nada bought 1.6 kg of tomatoes , who bought less ?

3. Find :

   a. $5 \times \frac{1}{7}$ b. $\frac{3}{10} + \frac{1}{100}$ c. $\frac{2}{9} \times \frac{5}{5}$ d. $1 - \frac{1}{5} - \frac{1}{5}$

4. The opposite graph shows the marks of four studens in Math and Science tests complete the following.





   a. The student who got the highest mark in Math is ....



   b. The difference between Math's mark and Science's mark of Romany is ....



   c. The student who got the lowest mark in Science is ....

2 Cairo Governorate



Heliopolis E. Zone
Math Orientation

1. Choose the correct answer.

1. $1\frac{1}{4} + \frac{3}{4} =$ ....

   A. $2\frac{1}{4}$ B. $2\frac{3}{4}$ C. 2 D. $1\frac{1}{2}$

2. The opposite figure is named as ....

   A. $\overleftrightarrow{AB}$ B. $\overline{AB}$ C. $\overrightarrow{AB}$ D. $\overrightarrow{BA}$



3. 5 Tenths = ...

   A. 0.50 B. 5.5 C. 0.05 D. 0.55

4. Which of the following fractions is closest to $\frac{1}{2}$?

   A. $\frac{1}{4}$ B. $\frac{7}{16}$ C. $\frac{9}{10}$ D. $\frac{11}{12}$

5. The unit fraction from the following is ....

   A. $\frac{3}{7}$ B. $\frac{4}{5}$ C. $\frac{5}{9}$ D. $\frac{1}{10}$

6. The place value of the digit 5 in the number 12.5 is ....

   A. Tenths B. Tens C. Hundreds D. Hundredths

7. $2\frac{3}{5} =$ .... [as an improper fraction]

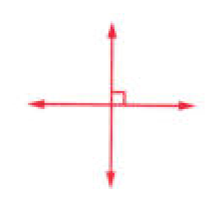
   A. $\frac{10}{5}$ B. $\frac{30}{5}$ C. $\frac{13}{5}$ D. $\frac{5}{13}$

2. Complete.

1. $3\frac{1}{4} = \frac{\text{—}}{4}$

2. 5 + 0.6 + 0.02 = ... [in a standard form]

3. The opposite two lines are ....



4. $\frac{1}{3} \times \frac{2}{3} =$ ....

5. $3\frac{5}{6} - 2\frac{1}{6} =$ .... [as a mixed number]

6. The equilateral triangle has .... equal sides.

7. $\frac{5}{4} = \frac{\text{—}}{20}$

8. $5\frac{2}{10} =$ .... [as a decimal number]

3. **Choose the correct answer.**

1. Which of the following has the same value as $\frac{3}{7}$?

A. $\frac{2}{7}+\frac{2}{7}+\frac{2}{7}$ B. $\frac{3}{7}+\frac{3}{7}$ C. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$ D. $\frac{1}{7}+\frac{2}{7}+\frac{3}{7}$

2. $\frac{5}{8}$ ☐ $\frac{5}{11}$

A. $<$ B. $=$ C. $>$

3. Which of the following angles is a measure of an acute angle ?

A. 70° B. 90° C. 150° D. 120°

4. The fraction which represents the colored part  is ....

A. $\frac{1}{4}$ B. $\frac{3}{4}$ C. $\frac{2}{4}$ D. $\frac{3}{5}$

5. $\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}=$ ....

A. $\frac{5}{3}$ B. $4\times\frac{1}{3}$ C. $\frac{4}{12}$ D. $\frac{1}{12}$

6. Which of the following fractions is equivalent to 0.2 ?

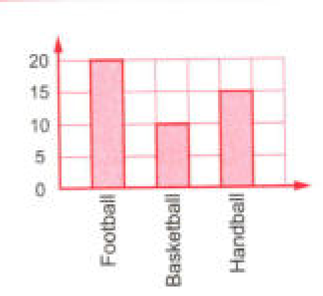
A. $\frac{1}{3}$ B. $\frac{1}{4}$ C. $\frac{1}{2}$ D. $\frac{1}{5}$

7. The value of the digit 4 in the number 5.41 is ....

A. 0.4 B. 0.04 C. 1.4 D. 0.14

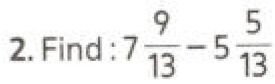
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4. **Answer the following questions :**



1. By using the opposite graph :

How many boys prefer handball ?



2. Find : $7\frac{9}{13}-5\frac{5}{13}$

3. Write the fractions $\frac{5}{10}$, $\frac{3}{10}$, $\frac{7}{100}$, $\frac{9}{10}$ in an ascending order.

4. Draw an angle with measure 90°

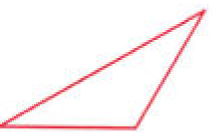




3 Giza Governorate — Al Omrania Education Math Inspection

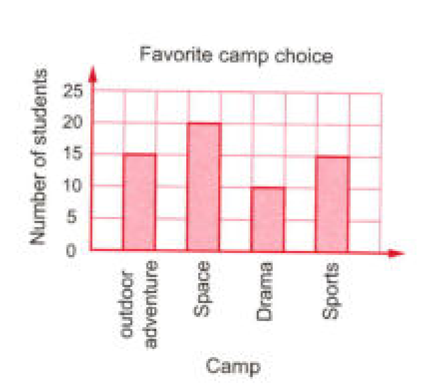
1. Choose the correct answer.

1. Which of the following is a unit fraction ?
   A. $\frac{2}{3}$　B. $\frac{1}{5}$　C. $\frac{3}{7}$　D. $1\frac{1}{5}$
2. 4 Hundredths = ...
   A. 0.04　B. 4.04　C. 0.4　D. 4.40
3. Which of the following fractions is equivalent to 1 ?
   A. $\frac{2}{7}$　B. $1\frac{5}{7}$　C. $\frac{7}{7}$　D. $\frac{7}{2}$
4. The measure of an acute angle may equal ....
   A. 180°　B. 90°　C. 100°　D. 80°
5. The opposite figure is named as .... P Q
   A. $\overline{PQ}$　B. $\overleftarrow{QP}$　C. $\overrightarrow{PQ}$　D. $\overleftrightarrow{PQ}$
6. $3\frac{2}{3}$ is called ....
   A. a proper fraction　B. a mixed number
   C. an improper fraction　D. a whole number
7. The opposite triangle is .... triangle.
   A. a Right　B. an Acute
   C. an Obtuse　D. a straight



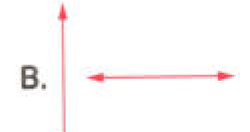
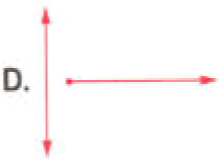
2. Complete.

1. 24 Tenths = ...
2. The measure of an .... angle is less than the measure of a right angle.
3. The numerator of the fraction $\frac{5}{8}$ is ....
4. 5 + 0.05 + 0.5 = ...
5. $2\frac{1}{7}$ = ... [as an improper fraction]
6. The rectangle has .... right angles.
7. $3\frac{3}{100}$ = ... [as a decimal number]
8. By using opposite graph :
   Number of students who choose sports = ...



3. Choose the correct answer.

1. Which of the following lines shows two parallel lines ?

A.  B.  C.  D. 

2. .... angle measures between 90° and 180°

A. An acute B. A right C. An obtuse D. A straight

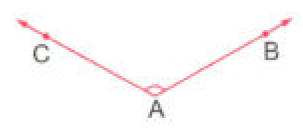
3. $\frac{15}{6} = \frac{-}{2}$

A. 3 B. 2 C. 5 D. 4

4. $\frac{2}{9} \times$ .... $= \frac{2}{9}$

A. 0 B. 1 C. $\frac{2}{9}$ D. $\frac{9}{2}$

5. The opposite angle is named as angle ....



A. CAB B. BCA

C. CBA D. ABC

6. The type of triangle whose side lengths are 10 cm , 8 cm and 6 cm. is .... triangle.

A. an isosceles B. an obtuse C. an acute D. a scalene

7. $1\frac{1}{4} + \frac{3}{4} =$ ....

A. $2\frac{1}{4}$ B. 2 C. 4 D. $2\frac{3}{4}$

4. Answer the following questions.

1. There are 15 birds on a tree , $\frac{2}{5}$ of them flew away. What is the number of birds that flew away ?

2. $3\frac{2}{5} + 1\frac{1}{5} =$ ....

3. $5 - 2\frac{3}{7} =$ ....

4. Draw an angle with measure 90°

4 Giza Governorate



North Giza Educational Administration
Mathematics Guidance

1. Choose the correct answer.

1. 0.2 is equivalent to ....

   A. $\frac{7}{100}$ B. $\frac{20}{100}$ C. $\frac{10}{2}$ D. $\frac{1}{2}$

2. 7 Hundredths = ...

   A. $\frac{7}{100}$ B. 0.29 C. 0.71 D. $\frac{17}{100}$

3. Which of the following represents a ray AB ?

   A. $\overleftrightarrow{AB}$ B. $\overrightarrow{AB}$ C. $\overrightarrow{BA}$ D. $\overline{AB}$

4. $\frac{7}{8}$ is closer to the benchmark fraction ....

   A. 0 B. 1 C. 2 D. $\frac{1}{2}$

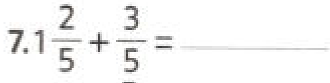
5. 0.5 ☐ 0.13

   A. $>$ B. $<$ C. $=$ D. $\geq$

6. The opposite figure represents .... straight lines

   A. a parallel B. a perpendicular

   C. an intersect D. a congruent



7. $1\frac{2}{5} + \frac{3}{5} =$ ....

   A. $1\frac{5}{10}$ B. $\frac{6}{10}$ C. 2 D. 5

2. Complete.

1. $\frac{30}{100} = \frac{\dots}{10}$
2. $\frac{6}{100} + \frac{1}{100} = \frac{\dots}{\dots}$
3. The measure of the straight angle = ... °
4. $\frac{2}{3} \times \frac{\dots}{4} = \frac{8}{12}$
5. The type of the angle of measure 150° is .... angle.
6. $\frac{8}{10} - \frac{5}{10} = \frac{\dots}{\dots}$
7. Seven and three tenths = ...
8. 5 + 0.50 + 0.01 = ...

3. Choose the correct answer.

1. $4\frac{6}{7} - 1\frac{5}{7} =$ ....

A. $3\frac{1}{7}$ B. $5\frac{5}{7}$ C. $2\frac{5}{7}$ D. $1\frac{5}{7}$

2. A decimal number that is equivalent to $\frac{27}{10}$ is ....

A. 2.7 B. 7.2 C. 0.27 D. 20.7

3. The digit that is in the Hundredths place of the number 125.37 is ....

A. 5 B. 2 C. 1 D. 7

4. Which of the following is the measure of an obtuse angle ?

A. 25° B. 90° C. 88° D. 95°

5. $\frac{2}{\quad} > \frac{2}{7}$

A. 7 B. 8 C. 5 D. 9

6. The fraction $\frac{4}{10}$ is closest to the benchmark fraction ....

A. 0 B. $\frac{1}{2}$ C. 1 D. $1\frac{1}{2}$

7. $\frac{5}{9} + \frac{4}{9} =$ ....

A. $\frac{1}{9}$ B. $\frac{9}{18}$ C. 1 D. $\frac{20}{81}$

4. Answer the following questions.

1. The type of the angle of measure 50° is ....

2. Manar walks 1.1 km in the morning and 0.9 km in the evening. What is the total distance that manar walks ?

The total distance = ...

3. Arrange the following decimals in a descending order 0.08 , 0.03 , 0.9 , 0.5

The order is : ....

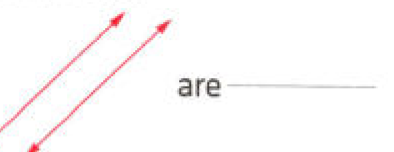
4. Mohamed had solve $\frac{1}{6}$ of his homework before returns to home, what is the fraction which represents the remainder of the homework ?



5 Alexandria Governorate

West Alexandria Educational Administration
Mathematics Supervision

1. Choose the correct answer.

1. The two lines  are ....

   A. intersecting. B. perpendicular. C. parallel. D. scalene.

2. Which of the following is a unit fraction ?

   A. $\frac{2}{3}$ B. $\frac{1}{5}$ C. $\frac{3}{7}$ D. $1\frac{1}{5}$

3. Fifteen hundredths = ...

   A. 1.5 B. 0.15 C. 0.015 D. 10.5

4. $\frac{6}{8}$ = ... (in the simplest form).

   A. $\frac{4}{3}$ B. $\frac{2}{4}$ C. $\frac{3}{4}$ D. $\frac{1}{2}$

5. The angle is .... angle.

   A. an acute B. a right C. an obtuse D. a straight

6. $\frac{7}{3}$ = ... (as a mixed number).

   A. $1\frac{1}{3}$ B. $3\frac{1}{3}$ C. $3\frac{1}{2}$ D. $2\frac{1}{3}$

7. $2\frac{1}{10} + \frac{1}{100}$ = ...

   A. $2\frac{11}{100}$ B. $2\frac{2}{100}$ C. $2\frac{2}{10}$ D. $2\frac{2}{110}$

2. Complete.

1. $7\frac{7}{9} - 4\frac{5}{9}$ = ...
2. 5.2 = ... Tenths.
3. The .... has four right angles and four equal sides.
4. $\frac{2}{5} \times \frac{3}{3}$ = ...
5. The isosceles triangle has .... equal sides in length.
6. $1 = \frac{3}{\ldots}$
7. 0.5 ☐ 0.45
8. $\frac{7}{12}$ = ... (by using benchmark fractions).

3. Choose the correct answer.

1. $\frac{2}{10} =$ ....

A. 1.2 B. 2.1 C. 0.2 D. 0.22

2. The value of digit 5 in the number 7.45 is ....

A. 0.05 B. 0.5 C. 5 D. 50

3. $3\frac{2}{5} =$ .... [as an improper fraction].

A. $\frac{17}{3}$ B. $\frac{17}{5}$ C. $\frac{32}{5}$ D. $\frac{13}{5}$

4. The angle of measure .... is an obtuse angle.

A. 40° B. 90° C. 120° D. 180°

5. $3 + 0.2 + 0.01 =$ ....

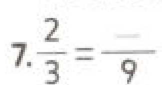
A. 0.321 B. 12.3 C. 3.12 D. 3.21

6. The opposite triangle is .... triangle.

A. a right B. an acute

C. an obtuse D. a straight

7. $\frac{2}{3} = \frac{\dots}{9}$

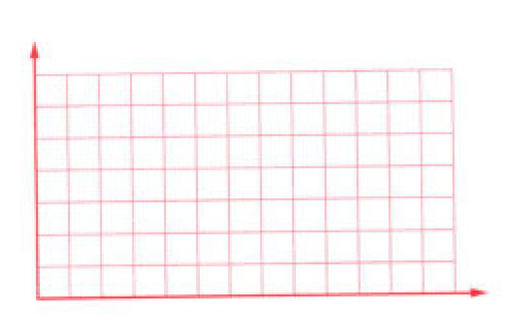


A. 3 B. 6 C. 9 D. 12

4. Answer the following questions.

1. Represent these data by using the double bar graph :

Day	Saturday	Sunday	Monday	Tuesday
Hazem	2	1	2	3
Kareem	1	2	3	2



2. Write the name of the following figures :

a. ....

b. ....

3. Hossam walked $\frac{5}{10}$ km. and then he walked $\frac{21}{100}$ km.

How long did Hossam walk in all ?

4. Draw ∠ ABC of measure 90°.

6 El-Kalyoubia Governorate



Directorate of Education
Maths Supervision

1. Choose the correct answer from those given.

1. Which of the following is a unit fraction ?

A. $\frac{1}{7}$ B. $\frac{2}{7}$ C. $\frac{5}{7}$ D. $\frac{7}{7}$

2. $\frac{1}{9}+\frac{1}{9}=$ ....

A. $\frac{1}{9}$ B. $\frac{1}{18}$ C. $\frac{2}{9}$ D. $\frac{1}{2}$

3. The fraction $\frac{18}{36}$ in the simplest form is ....

A. $\frac{1}{2}$ B. $\frac{6}{9}$ C. $\frac{9}{9}$ D. $\frac{3}{4}$

4. $\frac{1}{10}+\frac{1}{100}=$ ....

A. $\frac{11}{10}$ B. $\frac{11}{100}$ C. $\frac{2}{10}$ D. $\frac{2}{100}$

5. Which of the following are two parallel straight lines ?

A. B.  C. D.

6. The angle of measure 150° is called .... angle.

A. an acute B. a right C. an obtuse D. a straight

7. To represent a set of data on the number line, we use ....

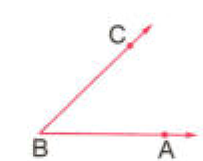
A. a bar graph B. a pictograph C. a double bar graph D. a line plot

2. Complete.

1. $6\frac{4}{5}-3\frac{4}{5}=$ ....
2. $4+\frac{3}{4}=$ ....
3. $\frac{5}{6}\times\frac{6}{6}=$ ....
4. $\frac{7}{100}=$ .... (in a decimal form)

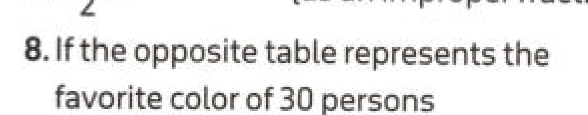


5. The name of the opposite angle is ....





6. The measure of the right angle = ... °
7. $3\frac{1}{2}=$ .... (as an improper fraction)



8. If the opposite table represents the favorite color of 30 persons , then the favorite color is ....

The color	Red	Yellow	Black	Green
No. of persons	12	10	2	6

3. Choose the correct answer.

1. The equivlant fraction to $\frac{2}{9}$ is ______

   A. $\frac{2}{18}$ B. $\frac{4}{18}$ C. $\frac{6}{9}$ D. $\frac{4}{27}$

2. $\frac{4}{5}$ ☐ $\frac{2}{5}$

   A. $<$ B. $>$ C. $=$ D. $\leq$

3. The measure of the angle which represents $\frac{1}{3}$ of the circle = ______ °

   A. 30 B. 60 C. 90 D. 120

4. $3 + 0.9 + 0.02 =$ ______

   A. 3.92 B. 9.23 C. 2.93 D. 392

5. To represent two sets of data in the same graph, then the suitable representation is ______

   A. a bar graph. B. a pictograph. C. a double bar graph. D. a line plot.

6. In the opposite line plot, the greatest frequncey is ______

   A. 0 B. $\frac{1}{2}$ C. 1 D. $1\frac{1}{2}$

7. If $\frac{a}{6} = \frac{2}{3}$, then a = ______

   A. 4 B. 6 C. 8 D. 10

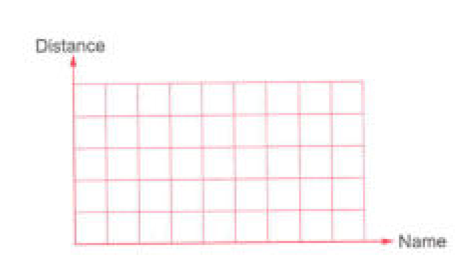
4. Answer each of the following.

1. Amgad ate $\frac{2}{5}$ of a pizza. Find the fraction of the remaining part of pizza.

2. Yasser walked $\frac{2}{10}$ km., and he stop 10 minutes, then he walked another $\frac{5}{10}$ km. What is the total sum of the distance he walked?

3. The following table represents the distance of walking of 4 people in km. Represent it by bar graph.

Name	Ayman	Salma	Yousef	Ahmed
Distance	4	3	2	3



4. Draw an angle of measure 70°

7 El-Sharkia Governorate  Sharkia G.L.S. Math Inspection

1. Choose the correct answer.

1. Which of the following is not a unit fraction ?

A. $\frac{1}{3}$ B. $\frac{2}{7}$ C. $\frac{1}{5}$ D. $\frac{1}{4}$

2. $3\frac{1}{4}$ = ... (as an improper fraction)

A. $\frac{13}{3}$ B. $\frac{13}{4}$ C. $\frac{12}{4}$ D. $\frac{8}{4}$

3. Which of the following is a mixed number ?

A. $\frac{3}{5}$ B. $\frac{4}{3}$ C. $3\frac{1}{2}$ D. $\frac{1}{4}$

4. $\frac{6}{11}$ ☐ $\frac{4}{11}$

A. $>$ B. $<$ C. $\leq$ D. $=$

5. 47 Hundredths = ...

A. 0.47 B. 4.7 C. $\frac{47}{10}$ D. 0.74

6. $\frac{3}{7}$ is equivalent to ....

A. $\frac{6}{21}$ B. $\frac{9}{14}$ C. $\frac{9}{21}$ D. $\frac{9}{28}$

7. The equilateral triangle has .... equal sides(s).

A. 0 B. 1 C. 2 D. 3

8. $\frac{5}{10} + \frac{3}{100} = \frac{\ldots}{100}$

A. 35 B. 53 C. 503 D. 305

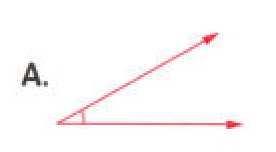
9. The place value of the digit 7 in the number 43.67 is ....

A. Tenths B. Hundredths C. 0.7 D. 0.07

10. $1\frac{4}{7} + 5\frac{2}{7}$ = ...

A. $6\frac{6}{14}$ B. $6\frac{8}{7}$ C. $6\frac{6}{7}$ D. $7\frac{6}{7}$

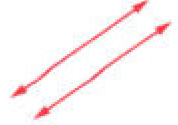
11. Which figure of the following shows a right angle ?

A.  B. C. D.

12. $3 + 0.08 =$ ______

A. 0.38　　B. 3.8　　C. 3.08　　D. 38

13. The opposite lines are ______



A. parallel.　　B. intersecting.

C. coincident.　　D. perendicular.

14. $7 \times \frac{1}{4} =$ ______

A. $\frac{7}{4}$　　B. $\frac{7}{28}$　　C. $\frac{1}{28}$　　D. $7\frac{1}{4}$

2. Complete.

1. The value of the digit 7 in the number 3.75 is ______
2. Six and 4 hundredths = ______ [in decimal form]
3. The name of ⟶ is a ______.
4. $3\frac{2}{10} = 3\frac{__}{100}$
5. An ______ angle is less than a right angle.
6. An ______ angle is greater than a right angle.
7. 1 = ______ Tenths.
8. $\frac{38}{100} =$ ______ [as a decimal]

3. Answer the following questions.

1. $\frac{3}{9} + \frac{6}{9} =$ ______
2. $7\frac{4}{7} - 2\frac{1}{7} =$ ______
3. $2 + 1\frac{1}{7} + 3\frac{3}{7} =$ ______
4. $1 - \frac{1}{5} - \frac{1}{5} =$ ______

8 El-Monofia Governorate



El Bagor Education
Maths Inspection

1. Choose the correct answer.

1. $\frac{1}{4} + \frac{2}{4} =$ ______

A. $\frac{3}{4}$　　B. $\frac{1}{4}$　　C. $\frac{3}{8}$　　D. 1

2. $\frac{3}{8}$ ☐ $\frac{7}{8}$

A. $<$　　B. $>$　　C. $=$　　D. $\geq$

3. Which of the following is a unit fraction ?

A. $\frac{5}{8}$　　B. $\frac{1}{7}$　　C. $\frac{3}{4}$　　D. $\frac{2}{9}$

4. The opposite two lines are ________

A. parallel.
B. intersecting.
C. perpendicular.

5. $5\frac{3}{10} = 5\frac{__}{100}$ ________

A. 30
B. 300
C. 3
D. 3000

6. $3.2 = 3 +$ ________

A. 0.2
B. 2
C. 20
D. 200

7. The measure of an obtuse angle ☐ the measure of a right angle.

A. <
B. >
C. =
D. ≥

2. Complete.

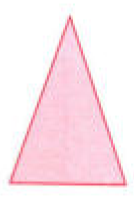
1. $1 - \frac{2}{3} =$ ________

2. $2\frac{5}{9} + 1\frac{2}{9} =$ ________

3. $3\frac{2}{5} - 2\frac{1}{5} =$ ________

4. The name of is ________

5. $\frac{2}{5} \times \frac{3}{3} =$ ________



6. The opposite figure is ________ triangle according to its sides.



7. $\frac{21}{5} =$ ________ [as a mixed number]

8. $2 + 0.1 + 0.03 =$ ________.

3. Choose the correct answer.

1. $\frac{10}{70} = \frac{__}{7}$

A. 100
B. 10
C. 1
D. 70

2. 3.4 = ________ Tenths.

A. 34
B. 340
C. 3.4
D. 0.34

3. $\frac{3}{5} = \frac{__}{15}$

A. 3
B. 9
C. 6
D. 15

4. Seven tenths = ________

A. 0.7
B. 70
C. 7
D. 700

5. $2\frac{1}{4}$ = ... (as an improper fraction).

A. $\frac{7}{4}$ B. $\frac{9}{4}$ C. $\frac{8}{4}$ D. $\frac{5}{4}$

6. $\frac{2}{10} + \frac{3}{100} = \frac{\ldots}{100}$

A. 23 B. 32 C. 5 D. 50

7. $\frac{6}{\ldots} = 1$

A. 1 B. 2 C. 3 D. 6

4. Answer the following.

1. Order the following fractions from least to greatest.

$\frac{3}{8}$, $\frac{1}{8}$, $\frac{5}{8}$, $\frac{7}{8}$, $\frac{4}{8}$

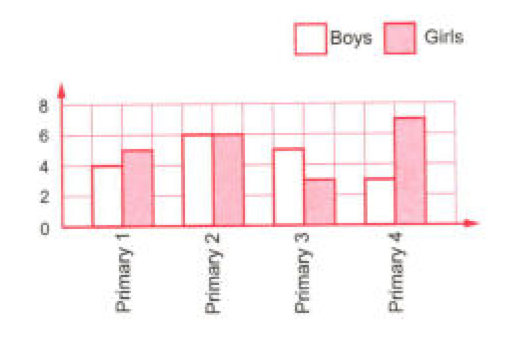
2. Hady had $3\frac{3}{4}$ cookies. He gave $2\frac{1}{4}$ to his sister.

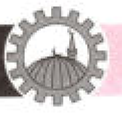
How many cookies did he have left ?

3. Draw an angle of measure 70°

4. Complete the table.

Pupils	Primary 1	Primary 2	Primary 3	Primary 4
Boys	....	6	5	....
Girls	5	....	....	7



9 El-Gharbia Governorate  **Central Mathematics Supervision**

1. Choose the correct answer.

1. $\frac{12}{18} = \frac{4}{\ldots}$

A. 9 B. 16 C. 6 D. 32

2. 0.23 = ...

A. $\frac{2}{3}$ B. $\frac{23}{10}$ C. $\frac{23}{100}$ D. $\frac{23}{14}$

3. 1.32 = 1 + ...

A. 32 B. 0.3 C. 0.32 D. 0.23

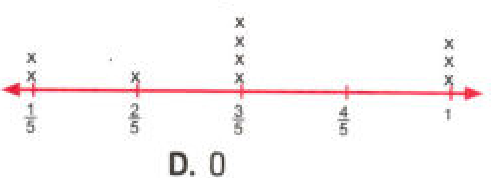
4. The angle with measure 73 degree is .... angle

A. an acute B. a right C. an obtuse D. a straight

5. In the opposite figure , the most repeated fraction is ________

A. $\frac{2}{5}$ B. $\frac{3}{5}$ C. 1 D. $\frac{1}{5}$

6. In the same lines plot , the number which not repeated any more is ________





A. $\frac{4}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. 0

7. $\frac{3}{5}$ ☐ 1

A. $<$ B. $>$ C. $=$ D. $\leq$

2. Complete the following space.

1. $2\frac{1}{5} + 1\frac{2}{5} =$ ________
2. $1 - \frac{2}{8} =$ ________
3. The polygon which has 4 sides is called ________
4. $\frac{3}{100} =$ ________ (in decimal form)
5. We measure the angle by using ________
6. $\frac{2}{5} =$ ________ (in decimal form)
7. The angle with measure 90 degree is called ________
8. The smallest number of $\frac{1}{11}$, $\frac{2}{11}$, $\frac{8}{11}$, is ________

3. Choose the correct answer.

1. $\frac{1}{3} + \frac{2}{3} =$ ________

A. $\frac{2}{3}$ B. 1 C. $\frac{4}{3}$ D. $\frac{3}{4}$

2. The two parallel straight lines intersected at ________ point(s).

A. 1 B. 2 C. zero D. 3

3. $1 \times \frac{4}{5} =$ ________

A. $\frac{5}{5}$ B. $\frac{4}{6}$ C. $\frac{4}{5}$ D. $\frac{14}{5}$

4. The angle with measure 93 degree is called ________

A. an acute. B. a right. C. an obtuse. D. a straight.

5. 0.49 ________ 0.04

A. $>$ B. $<$ C. $\geq$ D. $\leq$

6. The triangle with side lengths 7 cm , 7 cm and 6 cm is called ______

A. a scalene. B. an isosceles. C. an equilateral. D. a right.

7. $1.2 + 0.03 =$ ______

A. 1.6 B. 1.23 C. 1.05 D. 3.6

4. Answer the following questions.

1. $1\frac{3}{4} + 2\frac{5}{4} =$ ______

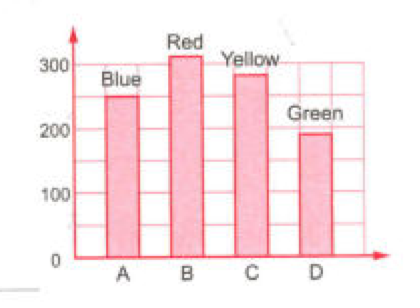
2. $2 - \frac{2}{3} =$ ______

3. Draw angle ABC with measure 90 degree

4. In the opposite bar line :

The graph order arrange colors in an ascending

The order is : ______ < ______ < ______ < ______



10 El-Dakahlia Governorate



Mathematics Supervision

1. Choose the correct answer.

1. The value of digit 2 in the number 10.25 is ______

A. 2 B. 20 C. 0.2 D. 0.02

2. The unit fraction of the following is ______

A. $\frac{2}{5}$ B. $\frac{1}{8}$ C. $\frac{9}{10}$ D. $\frac{2}{6}$

3. The two straight lines which are never intersecting are ______

A. perpendicular. B. parallel. C. intersecting. D. otherwise.

4. $\frac{17}{100} + \frac{5}{10} =$ ______

A. $\frac{22}{110}$ B. $\frac{22}{100}$ C. $\frac{67}{100}$ D. $\frac{67}{10}$

5. 0.7 is equivalent to ______

A. $\frac{7}{100}$ B. $\frac{1}{7}$ C. $\frac{10}{7}$ D. $\frac{70}{100}$

6. $4 \times \frac{1}{9} =$ ______

A. $\frac{9}{4}$ B. $\frac{4}{9}$ C. $\frac{4}{36}$ D. $\frac{5}{9}$

7. When the data is numbers , use ______ to represent it on a number line.

A. a bars B. a double bars C. a pictograph D. a line plot

2. Complete the following.

1. $2\frac{1}{7}$ = ______ (as an improper fraction)
2. $6 - 5\frac{3}{8}$ = ______
3. The shape ←———→ is called ______
4. The place value of the digit 3 in the number 11.23 is ______
5. $1\frac{20}{100} = 1\frac{__}{10}$
6. The measure of the right angle = ______ °
7. $\frac{3}{10} + \frac{11}{100}$ = ______
8. 7 Ones , 3 Tenths and 4 Hundredths = ______

3. Choose the correct answer.

1. $1\frac{8}{100}$ = ______

A. 1.8 B. 1.08 C. 8.1 D. 8.01

2. 1.7 = 1 + ______

A. 17 B. 0.1 C. 0.7 D. 0.17

3. 5 Ones , 9 Tenths = ______

A. 59 B. 5.9 C. 5.09 D. 0.59

4. $\frac{8}{16} = \frac{__}{4}$

A. 4 B. 2 C. 32 D. 8

5. The favorite food of a group of boys and girls in the class can be represented graphically by ______

A. a bars. B. a double bars. C. a pictograph. D. a line plot.

6. 44 Tenths = ______

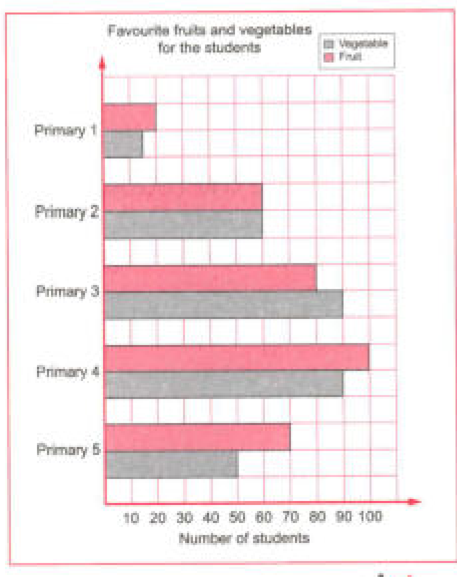
A. 0.44 B. 4.4 C. 44 D. 440

7. The angle of measure 108° is ______ angle.

A. an acute B. a right C. an obtuse D. a straight

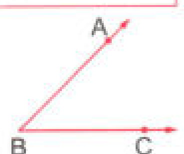
4. Answer the following questions.

1. Form the opposite graph :
   Which grade has the same number of students who like fruit and vegetables ?



2. Omar has 20 cakes. If $\frac{1}{5}$ of them are covered with chocolate. How many chocolate cakes are there ?

3. In the opposite figure :



   (1) The vertex of the angle is ....
   (2) The type of the angle is ....

4. Hossam walked $\frac{7}{10}$ kilometer , then he walked another $\frac{21}{100}$ kilometer. What is the total distance did Hossam walk ?

11 Ismailia Governorate



Directorate of Education
Directing Mathematics

1. Choose the correct answer.

1. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ ....
   A. $\frac{1}{7}$ B. $\frac{3}{21}$ C. $\frac{3}{7}$ D. $\frac{7}{3}$

2. The measure of the right angle = ...°
   A. 0 B. 90 C. 180 D. 360

3. $\frac{7}{3} =$ ....
   A. $3\frac{1}{3}$ B. $2\frac{1}{7}$ C. $3\frac{1}{2}$ D. $2\frac{1}{3}$

4. The isosceles triangle has .... equal side(s).
   A. 0 B. 1 C. 2 D. 3

5. 5.2 = ...
   A. 5.20 B. 5.02 C. 2.5 D. 2.50

6. To represent the number of studying hours for Yahiya and Ahmed in one week , you can use ....
   A. a line plot. B. a par graph. C. a double bar graph.

7. $\frac{2}{10} + \frac{1}{100} =$ ....

A. $\frac{3}{10}$ B. $\frac{3}{100}$ C. $\frac{21}{10}$ D. $\frac{21}{100}$

2. Complete.

1. $2.1 = 2 +$ ....
2. The two lines [two parallel lines] are ....
3. $5\frac{1}{4} =$ .... (as an improper fraction)
4. $\frac{1}{2}$ of a circle represents an angle of measure ....°
5. $3.4 =$ .... Tenths
6. The quadrilateral that has only one pair of parallel sides is a ....
7. $\frac{2}{5} = \frac{6}{\ldots}$
8. The type of graph which is suitable to represent these data is ....

Name	Omer	Aly	Nora	Mazen
Age	10	15	20	15

3. Choose the correct answer.

1. The obtuse triangle has .... acute angle(s).

A. 0 B. 1 C. 2 D. 3

2. $\frac{3}{7} >$ ....

A. $\frac{3}{8}$ B. $\frac{3}{4}$ C. $\frac{4}{7}$ D. $\frac{3}{6}$

3. $\frac{2}{5} + \frac{1}{5} + 3 =$ ....

A. $3\frac{3}{5}$ B. $\frac{6}{5}$ C. $\frac{6}{10}$ D. $3\frac{3}{10}$

4. The figure [ray from B through A] is named as ....

A. $\overline{AB}$ B. $\overrightarrow{BA}$ C. $\overleftrightarrow{AB}$ D. $\overrightarrow{AB}$

5. $4\frac{1}{3} =$ ....

A. $4 + \frac{1}{3}$ B. $4 \times \frac{1}{3}$ C. $\frac{5}{3}$ D. $\frac{4}{3}$

6. A .... is a parallelogram with 4 right angles.

A. trapezium B. rhombus C. rectangle D. triangle

7. $\frac{5}{8} = \frac{3}{8} +$ ....

A. $\frac{1}{4}$ B. $\frac{2}{4}$ C. $\frac{2}{16}$ D. $\frac{8}{8}$

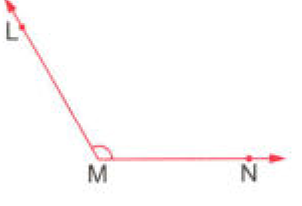
4. Answer the following questions.

1. Arrange in an ascending order : 3.4 , 4.3 , 3.04 , 4.03

2. Mazen has $3\frac{3}{4}$ cookies , he gave $2\frac{1}{4}$ to his sister.

   How many cookies does he have left ?

3. In the opposite angle :

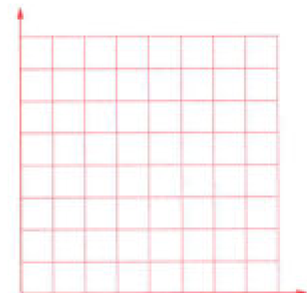


   a. The name of the angle is ....

   b. The type of the angle is ....

4. The following table represents the number of participants in the school activities , represent these data by a bar line graph.

The activity	Social	Cultural	Sports	Art
number of participants	20	40	70	30



12 Suez Governorate



South Administration of Education
Math Inspectorate

1. Choose the correct answer.

1. 0.40 is equivalent to ....

   A. $\frac{4}{100}$ B. $\frac{1}{4}$ C. $\frac{10}{4}$ D. $\frac{4}{10}$

2. .... $\times \frac{7}{7} = \frac{5}{7}$

   A. $\frac{1}{7}$ B. $\frac{1}{5}$ C. $\frac{5}{7}$ D. $\frac{5}{5}$

3. 0.5 = ...

   A. $\frac{2}{5}$ B. $\frac{25}{100}$ C. $\frac{5}{10}$ D. $2\frac{5}{100}$

4. $\frac{5}{7} = \frac{10}{\ldots}$

   A. 11 B. 12 C. 13 D. 14

5. The opposite two lines are ....

   A. parallel. B. perpendicular.

   C. intersecting. D. not intersecting.

6. The name of the figure L M is ....

   A. $\overleftrightarrow{LM}$ B. $\overrightarrow{LM}$ C. $\overline{LM}$ D. $\overrightarrow{ML}$

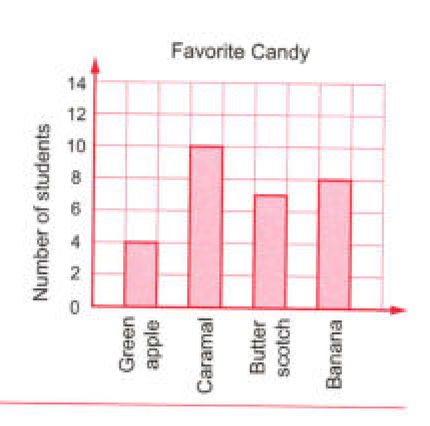
7. Which type of graph is suitable for representing this data ?

Name	Ahmed	Nora	Sally	Ola
Age	13	17	15	10

   A. a line plot B. a bar graph C. a pictograph D. a double bar

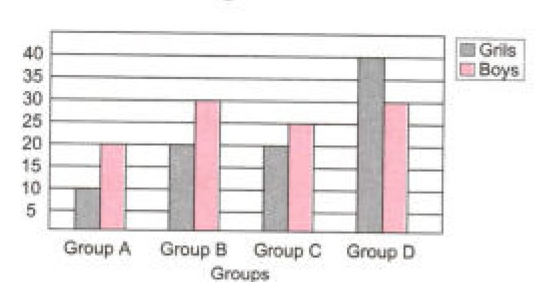
2. Complete.

1. $\frac{6}{10}$ = ________ (as a decimal number)
2. $4 \times \frac{1}{5}$ = ________
3. $9\frac{7}{12} + \frac{5}{12}$ = ________
4. The model [| ■ | | ■] represents the fraction ________
5. The triangle has ________ sides.
6. The circle can be divided into ________ right angles.
7. The measure of the right angle = ________ °
8. In the opposite graph :
   The number of students who like banana = ________

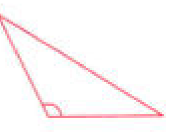


3. Choose the correct answer.

1. ________ is a unit fraction.
   A. $\frac{7}{4}$ B. $\frac{7}{7}$ C. $\frac{4}{7}$ D. $\frac{1}{7}$
2. $\frac{2}{9}$ ☐ $\frac{2}{7}$
   A. < B. = C. > D. otherwise
3. The suitable method to represent the favorite colour for boys and girls is ________
   A. a line plot B. a bar graph C. a pictograph D. a double bar
4. The opposite figure is called a ________ ⟶
   A. ray. B. line segment. C. straight line. D. point.
5. $2\frac{2}{5}$ = ________ (as an improper fraction)
   A. $\frac{12}{4}$ B. $\frac{1}{4}$ C. $\frac{13}{4}$ D. $\frac{12}{5}$
6. The opposite figure represents ________
   A. a line plot.
   B. a bar graph.
   C. a pictograph.
   D. a double bar.



7. The opposite triangle is ______ triangle.



A. an acute
B. an obtuse
C. a right
D. an equilateral

4. Answer the following questions.

1. Order the following fraction in an ascending order :

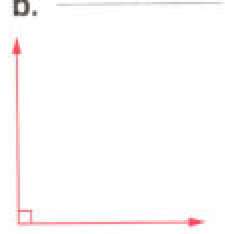
$\frac{5}{9}$, $\frac{1}{9}$, $\frac{6}{9}$, $\frac{4}{9}$

2. Hossam walked $\frac{5}{10}$ km , then he walked another $\frac{21}{100}$ km , how long did Hossam walk all together ?

3. The type of the angle is :

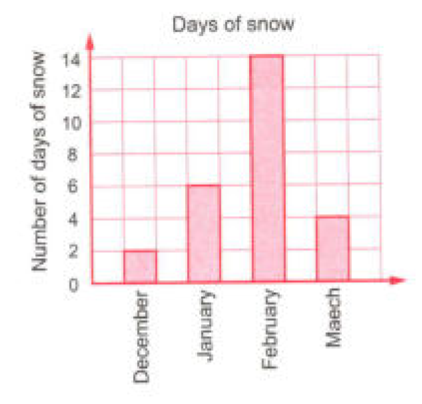
a. ______ angle.

b. ______ angle.



4. Complete the table :

Month	December	January	February	March
No. of days	......	......	......	......



13 **Damietta Governorate**



Directorate of Education
Maths Supervision

1. Choose the correct answer.

1. The unit fraction from the following is ______

A. $\frac{1}{5}$
B. $\frac{3}{5}$
C. 1
D. $\frac{5}{1}$

2. $\frac{5}{2}$ is called ______

A. a proper fraction.
B. an improper fraction.
C. a mixed number.
D. a whole number.

3. ______ is one of the methods used to represent data.

A. Symmetry
B. Congruence
C. Bar graph
D. Parallelism

4. This figure ⟶ is called ________ .

A. a line segment B. a line C. a ray D. an angle

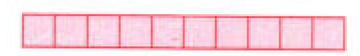
5. $3\frac{1}{2} =$ ________ (as an improper fraction)

A. $\frac{5}{2}$ B. $\frac{7}{2}$ C. $\frac{9}{2}$ D. $\frac{11}{2}$

6. The ________ is formed of two rays have the same endpoint.

A. line segment B. ray C. line D. angle

7. The following model represents ________



A. 1.04 B. 1.4 C. 2.4 D. 4.1

2. Complete the following.

1. $7 + 0.9 + 0.02 =$ ________

2. The type of the angle whose measure 120° is ________

3. $\frac{1}{8} \times 5 =$ ________

4. The number of acute angles in the acute triangle is ________

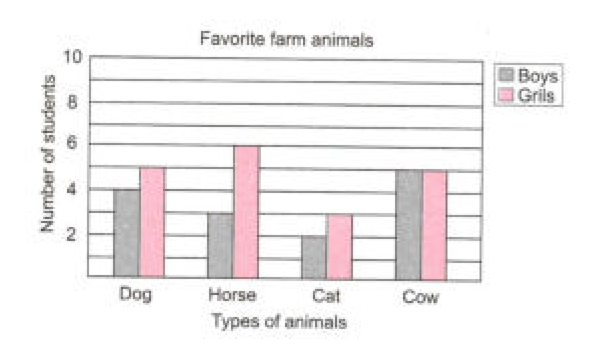
5. $5\frac{3}{5} - 2\frac{2}{5} =$ ________

6. The measure of the right angle = ________ °

7. $\frac{3}{4} = \frac{\ldots}{20}$



8. From the opposite double bar graph :
The type of animal liked by the same number of boys and girls is ________



3. Choose the correct answer.

1. The rectangle ▭ has ________ right angle(s).

A. 1 B. 2 C. 3 D. 4

2. 0.7 is equivalent to ________

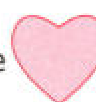
A. $\frac{3}{10}$ B. $\frac{2}{5}$ C. $\frac{7}{10}$ D. $\frac{7}{8}$

3. 1.2 ▭ 1.23

A. < B. > C. = D. otherwise

4. The two lines ⤢⤢ are ________

A. perpendicular. B. parallel. C. intersecting. D. coincident.

5. The opposite figure  has ________ line[s] of symmetry.

A. 1 B. 2 C. 3 D. 0

6. The number of equal sides in the equilateral triangle is ________

A. 1 B. 2 C. 3 D. 0

7. $4 + \frac{7}{11} + 2 + \frac{1}{11} =$ ________

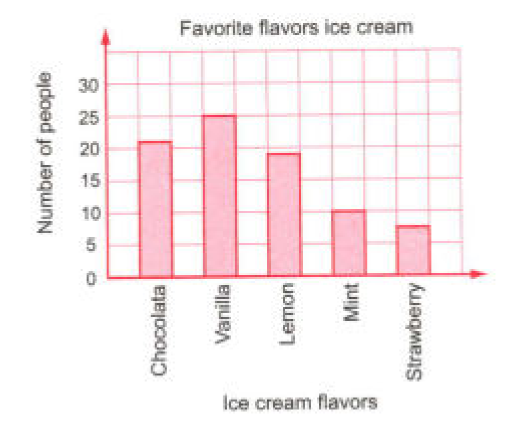
A. $2\frac{8}{11}$ B. $4\frac{8}{11}$ C. $6\frac{7}{11}$ D. $6\frac{8}{11}$

4. Answer the following questions.

1. Find the result of $\frac{1}{10} + \frac{13}{100}$

2. Hady had $3\frac{2}{3}$ cookies, he gave $2\frac{1}{3}$ to his sister. How many cookies did he have left?

3. From the opposite bar graph:



a. What is the number of people prefer the Mint flavor?

b. What is the most preferred ice cream flavors?

4. Draw the angle ABC with measure is 120°

14 Kafr El-Sheikh Governorate  **Maths Supervision**

1. Choose the correct answer.

1. The isosceles triangle has ________ equal sides[s].

A. 0 B. 1 C. 2 D. 3

2. $\frac{10}{3} =$ ________ [as a mixed number]

A. $1\frac{1}{3}$ B. $2\frac{1}{3}$ C. $3\frac{1}{3}$ D. $2\frac{2}{3}$

3. $\frac{2}{10} =$ ________ [as a decimal]

A. 1.2 B. 2.1 C. 0.22 D. 0.2

4. ______ angle measures between 90° and 180°

A. An acute B. An obtuse C. A right D. A straight

5. $3 + 0.1 + 0.02 =$ ______

A. 0.321 B. 0.312 C. 3.12 D. 2.13

6. Which of the following is an improper fraction ?

A. $1\frac{1}{3}$ B. $\frac{2}{3}$ C. $\frac{2}{9}$ D. $\frac{7}{3}$

7. The opposite two lines are ______

A. parallel.

B. perpendicular.

C. intersecting.



2. Choose the correct Answer :

1. $\frac{2}{5} \times \frac{3}{3} =$ ______

A. $\frac{5}{8}$ B. $\frac{6}{5}$ C. $\frac{2}{15}$ D. $\frac{2}{5}$

2. $\frac{1}{2}$ ☐ $\frac{6}{7}$

A. > B. < C. =

3. 31 Hundredths = ______

A. 3100 B. 3.1 C. 1.3 D. 0.31

4. $\frac{3}{10} + \frac{3}{100} =$ ______.

A. 3.3 B. 0.33 C. 33 D. 0.3

5. The name of ⟶ is ______

A. a ray. B. a line segment. C. a straight line. D. an angle.

6. The rectangle has ______ right angles(s).

A. 1 B. 2 C. 3 D. 4

7. The standard form of : $3 + 0.5 + 0.02$ is ______

A. 0.352 B. 3.52 C. 3.25 D. 2.53

3. Complete each of the following :

1. The angle which its measure 30° is ______ angle.

2. $5 \times \frac{1}{7} =$ ______ (as a proper fraction).

3. $3\frac{1}{2} =$ ______ (as an improper fraction).

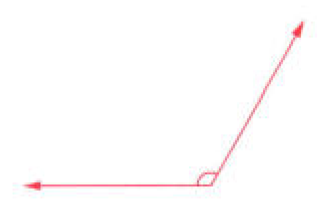
4. $\frac{3}{7} = \frac{\ }{21}$

5. $4\frac{1}{5} +$ .... $= 6\frac{1}{5}$

6. 2.4 = ... Tenths.

7. 3 Ones , 4 Tenths = ... (in standard form)

8. The opposite figure shows .... angle.



4. Answer the following questions.

1. Find $3 + 2\frac{1}{5} + 1\frac{1}{5} =$ ....

2. Draw ∠ ABC with measure 90°

3. Find $5\frac{4}{9} - 2\frac{2}{9} =$ ....

4. Sara had $4\frac{3}{7}$ cakes , she gave $2\frac{1}{7}$ to her brother.
   How many cakes left did she have ?
   The left = ... = ... cakes.

15 Beni Suef Governorate



Administration of Gov.Lang.Schools

1. Choose the correct answer.

1. $\frac{3}{5} =$ ....
   A. $\frac{2}{5} + 1$ B. $\frac{1}{5} + 2$ C. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ D. $\frac{1}{4} + \frac{4}{4}$

2. $3 \times \frac{1}{8} =$ ....
   A. $\frac{8}{3}$ B. $2 + \frac{5}{8}$ C. $\frac{18}{5}$ D. $\frac{3}{8}$

3. $4\frac{1}{3} =$ .... (as an improper fraction)
   A. $\frac{13}{3}$ B. $\frac{4}{3}$ C. $3\frac{1}{4}$ D. $\frac{3}{5}$

4. Which of the following is a proper fraction ?
   A. $\frac{2}{7}$ B. $\frac{7}{3}$ C. $\frac{8}{5}$ D. $5\frac{1}{4}$

5. 9.3 ☐ 9.03
   A. $<$ B. $>$ C. $=$ D. $\leq$

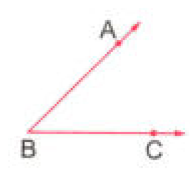
6. $1 = \frac{\ }{10}$
   A. 7 B. 8 C. 9 D. 10

7. $\frac{4}{9}$ is equivalent to ....

A. $\frac{6}{9}$ B. $\frac{4}{18}$ C. $\frac{8}{18}$ D. $\frac{8}{28}$

2. Complete each of the following.

1. $2\frac{2}{5}+1\frac{1}{5}=$ ....
2. $\frac{5}{8}=\frac{10}{...}$
3. $1-\frac{2}{3}=$ ....
4. $\frac{6}{100}=$ .... (as a decimal)
5. The name of ——→ is a ....
6. The name of the opposite angle is ∠ ....



7. An .... angle is smaller than a right angle in measure.
8. $3+0.2+0.05=$ .... (in standard form)

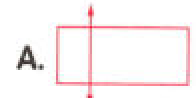
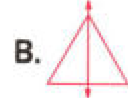
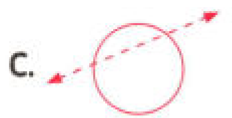
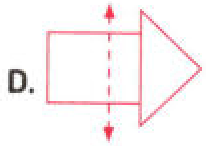
3. Choose the correct answer.

1. The opposite two lines are ....

A. intersecting. B. parallel.
C. perpendicular. D. nothing.



2. Which of the following figures shows a line of symmetry ?

A.  B.  C.  D. 

3. The quadrilateral that has 4 equal sides and 4 equal angles is a ....

A. rectangle. B. trapezium. C. square. D. circle.

4. 110° is classified as .... angle.

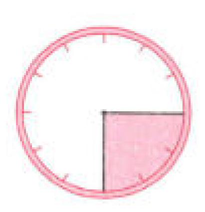
A. an obtuse B. an acute C. a straight D. a right

5. Six and four tenths = ...

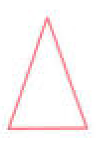
A. 4.6 B. 6.04 C. 640 D. 6.4

6. The angle which represents the colored part = ...°

A. 30 B. 60
C. 90 D. 120



7. The opposite triangle is an ________ triangle.



A. Isosceles B. equilateral

C. scalene D. right

4. Answer the following questions. (with steps)

1. Emy had $5\frac{3}{4}$ cakes, she gave $3\frac{1}{4}$ to her sister. How many Cakes left did she have ?

The left = ________ = ________ cakes.

2. Arrange the following in an ascending order.

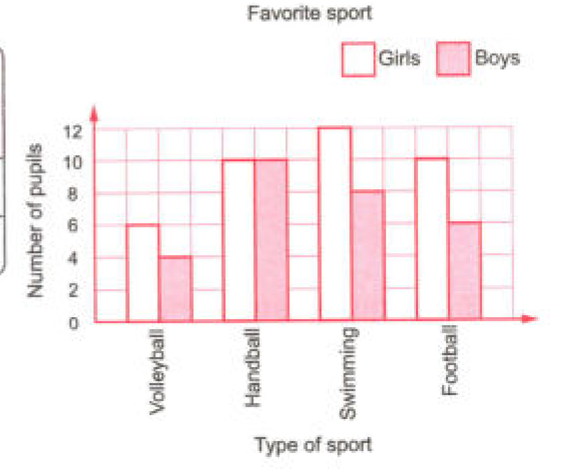
$\frac{7}{10}$, $\frac{3}{10}$, $\frac{1}{10}$, $\frac{9}{10}$

The order is : ________

3. Use the protractor to draw an angle of measure 70°

4. By using the opposite graph, complete the table :

Sport / Pupils	Volleyball	Handball	Swimming	Football
Girls	6	____	12	____
Boys	____	10	____	6



16 El-Menia Governorate  **Menia Directorate of Education**

1. Choose the correct answer.

1. The ________ has 4 right angles, and 4 equal sides.

A. triangle B. parallel gram C. rectangle D. square

2. 71 Hundredths = ________

A. $\frac{7}{100}$ B. 0.27 C. 0.71 D. $\frac{17}{100}$

3. $3\frac{2}{7}$ .... (as an improper fraction)

A. $3\frac{1}{7}$ B. $\frac{23}{7}$ C. $2\frac{2}{7}$ D. $\frac{20}{7}$

4. .... angle is less than right angle in measure.

A. An acute B. A right C. An obtuse D. A straight

5. $7 \times \frac{6}{11} =$ ....

A. $7\frac{1}{11}$ B. $\frac{7}{11}$ C. $\frac{42}{11}$ D. $\frac{72}{10}$

6. $\frac{2}{5} \times \frac{3}{3} =$ ....

A. $\frac{5}{8}$ B. $\frac{6}{5}$ C. $\frac{2}{15}$ D. $\frac{2}{5}$

7. $2\frac{4}{7} + 1\frac{1}{7} =$ ....

A. $3\frac{6}{7}$ B. $1\frac{5}{7}$ C. $3\frac{5}{7}$ D. $1\frac{3}{7}$

2. Complete.

1. The two lines (two parallel arrows) are ....
2. $\frac{3}{8} = \frac{\ldots}{16}$
3. The .... triangle has two equal sides.
4. 79 Tenths = ...
5. $\frac{9}{\ldots} = 1$
6. The name of (arrow) is called ....
7. $\frac{3}{10} + \frac{5}{100} =$ ....
8. The value of the digit 6 in the number 3.64 is ....

3. Choose the correct answer.

1. The rhombus has .... equal sides(s).

A. 1 B. 2 C. 3 D. 4

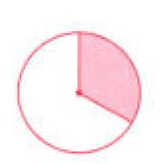
2. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ ....

A. 1 B. 2 C. 3 D. 4

3. $\frac{2}{10} = \frac{\ldots}{100}$

A. 10 B. 20 C. 30 D. 40

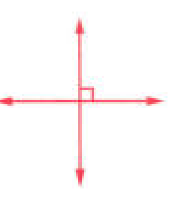
4. The angle which represents the colored part equals .... °



A. 90 B. 120

C. 60 D. 180

5. From the opposite figure , the two straight lines are ______



A. perpendicular. B. parallel.

C. intersecting. D. not intersect.

6. The opposite figure is named as ______



A. $\overline{AB}$ B. $\overrightarrow{AB}$ C. $\overleftrightarrow{AB}$ D. $\overleftrightarrow{XY}$

7. $\frac{3}{10}$ ☐ $\frac{3}{100}$

A. > B. < C. = D. ≠

4. Answer the following questions.

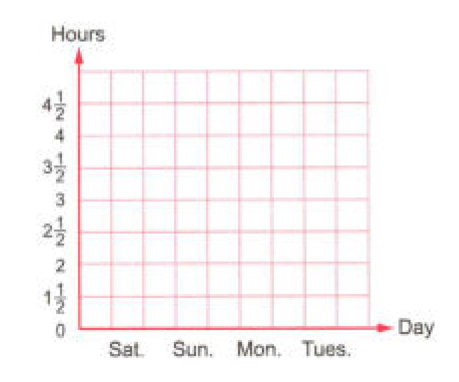
1. $6\frac{7}{8} - 4\frac{3}{8}$

2. $3 + 1\frac{3}{5}$

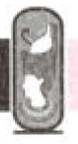
3. The following data show the number of hour that Ahmed study in four days.

Represent this data by using a bar graph.

Day	Sat	Sun.	Mon.	Tues.
Number of hours	3	$4\frac{5}{10}$	$3\frac{5}{10}$	4



4. Draw ∠ ABC with measure 120°

17 Souhag Governorate  Maths Inspection

1. Choose the correct answer.

1. $\frac{3}{100} =$ ______

A. 0.3 B. 0.03 C. 0.30 D. 0.300

2. The type of a triangle whose greatest angle with measure 95° is ______ triangle.

A. an acute B. a right C. an obtuse D. otherwise

3. The value of 5 in 9.45 is ______

A. 0.5 B. 0.05 C. 5 D. 50

4. $\frac{1}{10} +$ ______ $= \frac{15}{100}$

A. $\frac{5}{100}$ B. $\frac{5}{10}$ C. $\frac{14}{10}$ D. $\frac{14}{100}$

5. Two straight lines intersect in ______ point(s).

A. 0 B. 1 C. 2 D. 3

6. $\frac{5}{6}$ ☐ $\frac{5}{7}$

A. = B. > C. < D. ≤

7. The number of unit fractions of the fraction $\frac{3}{4}$ is ....

A. 4 B. 3 C. 2 D. 5

2. Complete.

1. .... $\times \frac{5}{7} = \frac{5}{7}$
2. The fraction $\frac{1}{5}$ is equivalent to the benchmark ....
3. 7.3 in the mixed form is ....
4. The opposite shape is called ....
5. The area of a rectangle whose dimensions are 2 cm and 5 cm = ...
6. The fraction represented the shaded parts = ...
7. The side length of a squae whose area is 36 cm^2 = ...
8. The name of the opposite figure is ....

3. Choose the correct answer.

1. $\frac{1}{6}$ ☐ $\frac{4}{6}$

A. < B. > C. = D. ≤

2. The place value of 2 in 10.02 is ....

A. Ones. B. Tens. C. Tenths. D. Hundredths.

3. Two straight lines that never intersecting are ....

A. parallel. B. perpendicular. C. intersect. D. otherwise.

4. The angle of measure 112° is called .... angle.

A. a right B. an acute C. an obtuse D. a straight

5. The equivalent fraction of $\frac{4}{5}$ is ....

A. $\frac{1}{4}$ B. $\frac{8}{5}$ C. $\frac{2}{5}$ D. $\frac{8}{10}$

6. .... whose numerator is less than whose denominator.

A. A proper fraction B. An improper fraction
C. A mixed number D. A whole number

7. All angles are right in ....

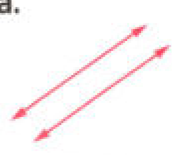
A. a rhombus. B. a square. C. a trapezium. D. a parallelogram.

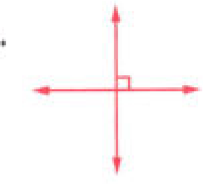
4. Answer the following.

1. Nessma cut a cake into 8 equal parts , she ate $\frac{3}{8}$ of them. what is the left ?

2. Arrange in an ascending order : $\frac{1}{10}$, $\frac{5}{10}$, $\frac{10}{10}$, $\frac{7}{10}$, $\frac{2}{10}$

3. Write the name of the following two lines.

a. 

b. 

4. The following table shows the number of studying hours for some students daily. Represent this data by a bar graph.

Student	Ali	Khaled	Omnia	Saif
No. of hours	2	$1\frac{1}{2}$	$3\frac{1}{2}$	5

18 Qena Governorate  Directiorate of Education Experimental Language School

1. **Choose the correct answer.**

1. Fifty hundredths = ...

A. 5,000 B. 0.05 C. 0.5 D. 5.05

2. The fraction that equivalents to $\frac{4}{5}$ is ....

A. $\frac{8}{10}$ B. $\frac{16}{25}$ C. $\frac{20}{35}$ D. $\frac{8}{15}$

3. An acute angle is .... a right angle in measure.

A. less than B. greater than C. equal D. half

4. The standard form of the number : 3 Ones , 5 Tenths and 7 Hundredths is ....

A. 3.57 B. 3.75 C. 7.53 D. 5.37

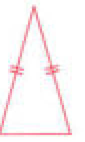
5. 3.07 .... 3 Ones , 7 Tenths.

A. $<$ B. $>$ C. $=$ D. $\geq$

6. $3\frac{17}{100} + 2\frac{5}{10} =$ ....

A. $5\frac{67}{100}$ B. $5\frac{22}{100}$ C. $5\frac{22}{10}$ D. $6\frac{67}{10}$

7. The opposite triangle is ....



A. isosceles , obtuse. B. equilateral , acute.

C. isosceles , acute. D. scalene , acute.

8. 70 Tenths is equivalent to ....

A. 0.7 B. 0.07 C. 0.70 D. 7

9. Ahmed ate $\frac{4}{6}$ of his chocolate bar , the fraction of remained part is ....

A. $\frac{2}{3}$ B. $\frac{1}{6}$ C. $\frac{3}{6}$ D. $\frac{1}{3}$

10. The quadrilateral that has only one pair of parallel sides is a ....

A. parallelogram. B. rhombus. C. trapezium. D. rectangle.

11. Which of the following represents a unit fraction ?

A. $\frac{4}{7}$ B. $\frac{7}{7}$ C. $1\frac{2}{7}$ D. $\frac{1}{7}$

12. The opposite figure is named as ....

C
A

A. $\overrightarrow{AB}$ B. $\overline{AC}$

C. $\overleftrightarrow{AC}$ D. $\overrightarrow{AC}$

13. To compare between rainfall in the deserts of Africa in the two years 2020 and 2022 , we use ....

A. a picture representation. B. a line plot graph.

C. a bar graph. D. a double bar graph.

14. .... angle represents $\frac{1}{4}$ of the circle.

A. An acute B. A right C. An obtuse D. A straight

2. Complete the following.

1. 124 Tenths = ...
2. $3\frac{2}{5}$ = ... [as an improper fraction].
3. All the isosceles triangle has .... equal sides.
4. $\frac{2}{5} \times \frac{3}{3}$ = ...
5. The rectangle has .... right angles.
6. The expanded form of two and sixty hundredths is ....
7. $\frac{1}{2}$ of a circle measures .... °
8. If $\frac{x}{6} = \frac{15}{30}$, then x = ...

3. Answer the following :

1. **Find the result :**

a. $4 + \frac{4}{8} + 2 + \frac{5}{8} =$ ....

b. $2\frac{4}{6} - \frac{5}{6} =$ ....

2. Gamal's home is 0.44 Km from the school , while Hany's home is $\frac{6}{10}$ from the school. Who has to walk a long distance to the school ?

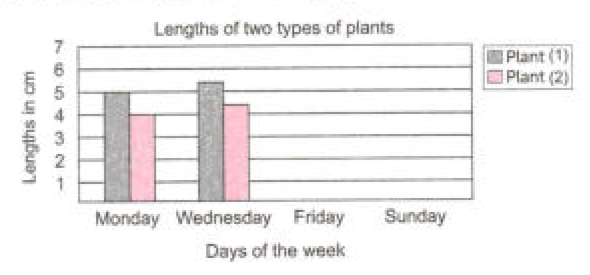
3. Ahmed has 15 cakes. If $\frac{3}{4}$ of them are covered with chocolate. How many chocolate cakes are there ?

4. Answer the following questions.

Kamal recorded the lengths of two types of plants in four days as follow :

	Mon.	Wed.	Fri.	Sun.
Plant (1)	5 cm	$5\frac{2}{5}$ cm	6 cm	$6\frac{1}{5}$ cm
Plant (2)	4 cm	$4\frac{2}{5}$ cm	$4\frac{3}{5}$ cm	5 cm

Use the above data to complete the following graph.



19 **Aswan Governorate**



Edfo Educational Zone

1. Choose the correct answer.

1. A triangle with one obtuse angle is called .... triangle

A. a right B. an obtuse C. an acute D. an equilateral

2. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ ....

A. $\frac{2}{3}$ B. $\frac{1}{3}$ C. $\frac{4}{3}$ D. 1

3. $\frac{4}{9} + \frac{1}{9} + \frac{2}{9} + 4 =$ ....

A. $\frac{7}{9}$ B. $\frac{9}{7}$ C. $4\frac{7}{9}$ D. $4\frac{1}{9}$

4. $\frac{5}{10}$ = ____________

A. $\frac{1}{5}$ B. 0.5 C. 5 D. 50

5. The angle which its measure between 0° and 90° is called ____________ angle.

A. a right B. an obtuse C. an acute D. a straight

6. The number of the unit fractions of the fraction $\frac{4}{9}$ is ____________

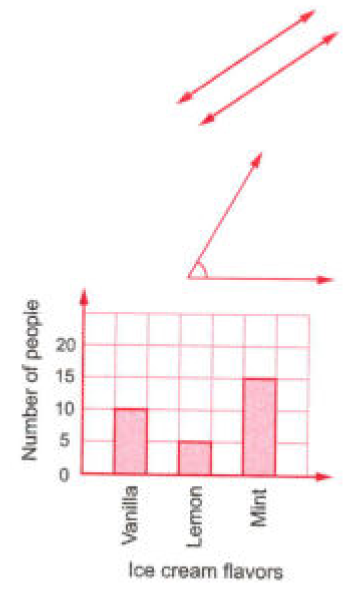
A. 5 B. 4 C. 3 D. 1

7. Forty-three hundredths in standard form is ____________.

A. 4.3 B. 430 C. 43 D. 0.43

2. Complete.

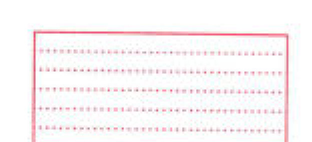
1. The opposite two lines are ____________
2. $\frac{10}{12} + \frac{1}{12} + 1 + 2 =$ ____________
3. 0.23 is equivalent to ____________ (as a fraction).
4. The opposite angle is ____________ angle.
5. The graph shows the favorite ice cream flavor.
   The number of people who liked mint flavor is ____________



6. In the opposite figure, the number of lines symmetry is ____________



7. Draw an angle of measure 90°



8. $2 - \frac{1}{4} =$ ____________

3. Choose the correct answer.

1. $\frac{6}{10} >$ ____________.

A. 0.61 B. 0.7 C. 0.34 D. 0.75

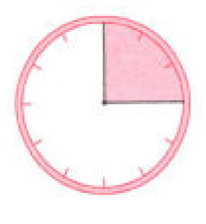
2. Which fraction is equivalent to $\frac{3}{9}$?

A. $\frac{8}{3}$ B. $\frac{1}{3}$ C. $\frac{6}{9}$ D. $\frac{3}{6}$

3. All the following fractions equivalent to $\frac{1}{2}$ except ____________

A. $\frac{3}{6}$ B. $\frac{2}{8}$ C. $\frac{5}{10}$ D. $\frac{2}{4}$

4. The angle which represents the opposite colored part equals ________



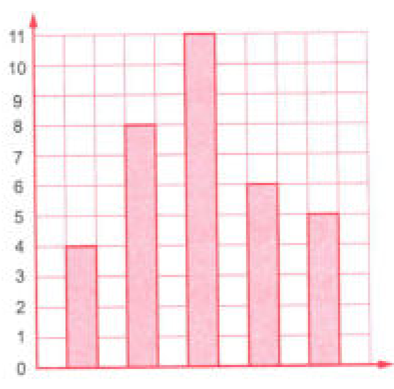
A. 90° B. 30°

C. 20° D. 15°

5. 0.8 Kg = ________ g

A. 8 B. 80 C. 800 D. 8000

6. The opposite graph shows ________



A. a bar graph

B. a line plot

C. a double bar graph

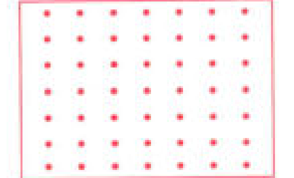
D. a pictograph

7. $\frac{90}{100} = \frac{\quad}{10}$

A. 90 B. 9 C. 100 D. 10

4. Answer the following questions.

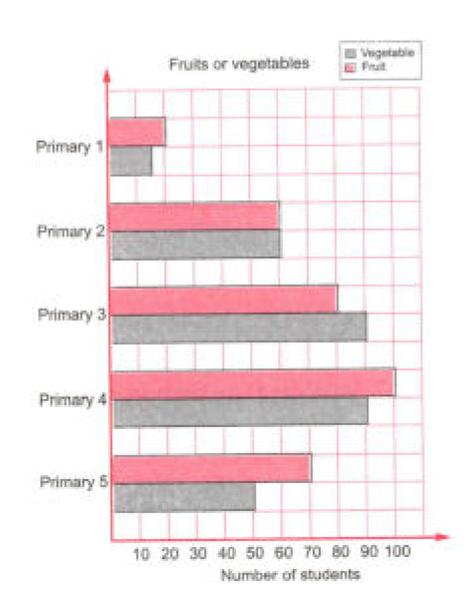
1. Build a triangle with a right angle.



2. Maha drank $\frac{4}{10}$ liter of juice. Her sister Soad drank $\frac{30}{100}$ liter of the same juice. How much juice did they drink together?

3. Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip
How many cookies were chocolate chip?

4. Use the opposite double bar graph:
Which grade has the same number of students who like fruits and vegetables?



20 South Sinai Governorate



Educational Directorate
El-Tur Department

1. Choose the correct answer.

1. Number of the unit fractions that formed the fraction $\frac{3}{8}$ is ....

   A. 5 B. 4 C. 3 D. 8

2. $\frac{7}{9}$ = ...

   A. $\frac{2}{9}+\frac{5}{9}$ B. $\frac{3}{9}+\frac{5}{9}$ C. $\frac{2}{6}+\frac{5}{6}$ D. $\frac{2}{9}$

3. The triangle which its side lengths 2 cm , 3 cm and 4 cm is called .... triangle.

   A. an equilateral B. an isosceles C. a scalene D. a right

4. $3\frac{1}{5}$ is equilavant to ....

   A. $\frac{17}{5}$ B. $\frac{16}{5}$ C. $\frac{5}{16}$ D. $\frac{9}{5}$

5. The suitable graph representing to compare the maximum and minimum temperature for some cities is ....

   A. a bar graph B. a line plot graph C. a double bar graph D. a pictograph

6. 0.14 = ...

   A. $\frac{14}{10}$ B. $\frac{14}{100}$ C. $1\frac{4}{100}$ D. $\frac{4}{10}$

7. 0.26 ☐ 0.62

   A. $<$ B. $>$ C. $=$ D. $\geq$

2. Complete.

1. $\frac{3}{4}\times\frac{2}{2}$ = ...
2. $\frac{1}{10}+\frac{1}{100}$ = ...
3. 2.3 = 2 + ...
4. The opposite figure represents two .... lines.



5. $\frac{1}{2}=\frac{\dots}{10}$
6. $1-\frac{5}{6}$ = ...
7. The quadrilateral in which all its sides are equal in length and all its angles are right is ....
8. If the measure of the greatest angle of a triangle is 140° , then the type of this triangle according to the measures of its angles is a/an .... triangle.

3. Choose the correct answer.

1. The standered form of the number (four and twenty-three hundredths) is ....

A. 23.4 B. 4.23 C. 4.32 D. 3.24

2. $\frac{3}{5}>$ ....

A. $\frac{3}{3}$ B. $\frac{3}{11}$ C. $\frac{3}{2}$ D. $\frac{3}{4}$

3. The angle with measure 180° is .... angle.

A. an acute B. a right C. an obtuse D. a straight

4. The opposite figure is named a .... →

A. a line segment. B. a ray. C. a line. D. a polygon.

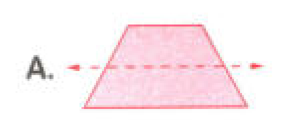
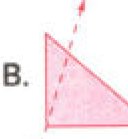
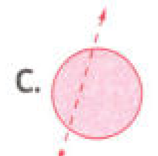
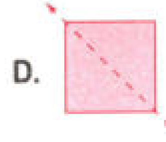
5. The measure of the angle which the fraction $\frac{1}{12}$ represents it on the circle is ....

A. 30° B. 60° C. 90° D. 180°

6. A rectangle which its length is 5 cm and its width is 4 cm, then its area = ... cm^2

A. 9 B. 18 C. 20 D. 40

7. Which of the following figures that has a line of symmetry ?

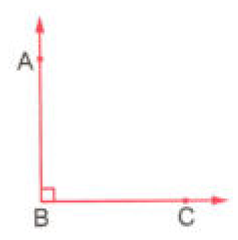
A.  B.  C.  D. 

4. Answer the following questions.

1. Ahmed drinks 0.6 liter of juice and Heba drinks $\frac{4}{10}$ liter of juice.
Who does drink more ?

2. Find the result of $2\frac{2}{9}+3\frac{5}{9}=$ ....

3. In the opposite figure :

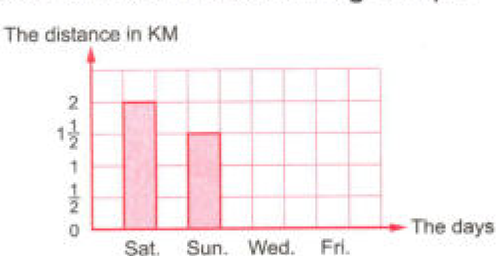


a. The name of the angle is ....

b. The kind of the angle is ....

4. The following table shows the distance that Reem walked it in Kilometers during 4 days.

The Day	Saturday	Sunday	Wednesday	Friday
The distance in KM	2	$1\frac{1}{2}$	1	$\frac{1}{2}$



Complete the bar graph.



Mathematics

By a group of supervisors

GUIDE ANSWERS FREE PART

2

SECOND TERM

4th PRIMARY

2024

Answers of unit

9

Fractions

- **Concept 1 :** Composing and Decomposing Fractions
- **Concept 2 :** Comparing Fractions
- **Concept 3 :** Multiplication and Fractions



Concept 1 Composing and Decomposing Fractions

Exercise 1

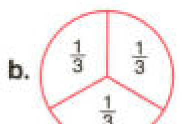
1.
a. 2 , 1 , half , $\frac{1}{2}$
b. 3 , 1 , third , $\frac{1}{3}$
c. 4 , 1 , quarter or fourth , $\frac{1}{4}$
d. 5 , 1 , fifth , $\frac{1}{5}$
e. 6 , 1 , sixth , $\frac{1}{6}$
f. 8 , 1 , eighth , $\frac{1}{8}$

2.
a. a number that names a part of a whole or a part of a group.
b. the number above the bar in a fraction that tells how many equal parts have been counted.
c. The number below the bar in a fraction that tells how many equal parts there are.
d. a fraction has a numerator of 1
e. a fraction its numerator is less than its denominator.

3.
a.

$\frac{1}{2}$	$\frac{1}{2}$

b.



c.

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

4.
a. 3 b. 6 c. 4
d. 5 e. 3 f. 7

5.
a. $\frac{3}{4}$

$\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

b. $\frac{2}{3}$

$\frac{2}{3} = \frac{1}{3} + \frac{1}{3}$

c. $\frac{7}{10}$

$\frac{7}{10} = \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$

d. $\frac{6}{8}$

$\frac{6}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

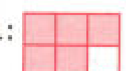
e. $\frac{8}{16}$

$\frac{8}{16} = \frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{16}$
$+ \frac{1}{16} + \frac{1}{16}$

f. $\frac{5}{8}$

$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

6.
a. Fraction : $\frac{2}{4}$
Unit fraction : $\frac{1}{4}$
Equation : $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$

b. Model : 

Unit fraction : $\frac{1}{6}$
Equation : $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{5}{6}$

c. Fraction : $\frac{3}{8}$

Equation : $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{3}{8}$

d. Model : 

Fraction : $\frac{2}{3}$

Unit fraction : $\frac{1}{3}$

7. a. 5 b. 2 c. 3 d. 2

8.

a. $1=\frac{6}{6}=\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

b. $1=\frac{3}{3}=\frac{1}{3}+\frac{1}{3}+\frac{1}{3}$

c. $\frac{4}{6}=\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

d. $\frac{5}{8}=\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$

9.

a. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

b. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

c. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

d. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$

e. $\frac{1}{6}+\frac{1}{6}$

f. $\frac{1}{11}+\frac{1}{11}+\frac{1}{11}+\frac{1}{11}+\frac{1}{11}+\frac{1}{11}+\frac{1}{11}$

10. [Answers may vary]

a. $\frac{3}{5}=\frac{1}{5}+\frac{2}{5}$, $\frac{3}{5}=\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

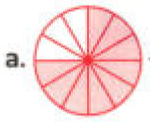
b. $\frac{7}{8}=\frac{2}{8}+\frac{5}{8}$, $\frac{7}{8}=\frac{1}{8}+\frac{2}{8}+\frac{4}{8}$

c. $\frac{5}{6}=\frac{2}{6}+\frac{3}{6}$, $\frac{5}{6}=\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

d. $\frac{4}{9}=\frac{2}{9}+\frac{2}{9}$, $\frac{4}{9}=\frac{1}{9}+\frac{1}{9}+\frac{2}{9}$

e. $\frac{4}{7}=\frac{1}{7}+\frac{3}{7}$, $\frac{4}{7}=\frac{2}{7}+\frac{2}{7}$

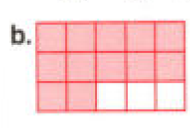
11. [Answers may vary]

a. 

$\frac{9}{12}=\frac{1}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}$

, $\frac{9}{12}=\frac{4}{12}+\frac{5}{12}$

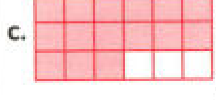
, $\frac{9}{12}=\frac{3}{12}+\frac{3}{12}+\frac{3}{12}$

b. 

$\frac{12}{15}=\frac{3}{15}+\frac{3}{15}+\frac{3}{15}+\frac{3}{15}$

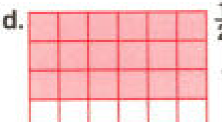
, $\frac{12}{15}=\frac{5}{15}+\frac{5}{15}+\frac{2}{15}$

, $\frac{12}{15}=\frac{4}{15}+\frac{4}{15}+\frac{4}{15}$

c. 

$\frac{15}{18}=\frac{5}{18}+\frac{5}{18}+\frac{5}{18}$

, $\frac{15}{18}=\frac{10}{18}+\frac{3}{18}+\frac{2}{18}$

d. 

$\frac{18}{24}=\frac{6}{24}+\frac{6}{24}+\frac{6}{24}$

, $\frac{18}{24}=\frac{10}{24}+\frac{5}{24}+\frac{3}{24}$

12. [Answers may vary]

a. $\frac{7}{8}=\frac{6}{8}+\frac{1}{8}$

, $\frac{7}{8}=\frac{2}{8}+\frac{1}{8}+\frac{4}{8}$

b. $\frac{6}{10}=\frac{5}{10}+\frac{1}{10}$

, $\frac{6}{10}=\frac{1}{10}+\frac{1}{10}+\frac{1}{10}+\frac{3}{10}$

c. $\frac{10}{16}=\frac{5}{16}+\frac{5}{16}$

, $\frac{10}{16}=\frac{6}{16}+\frac{2}{16}+\frac{2}{16}$

d. $\frac{12}{20}=\frac{10}{20}+\frac{2}{20}$

, $\frac{12}{20}=\frac{5}{20}+\frac{5}{20}+\frac{1}{20}+\frac{1}{20}$

13. a. $\frac{1}{4}$ b. $\frac{7}{10}$

c. 8 d. 4

e. $\frac{2}{3}$ f. $\frac{4}{5}$

g. $\frac{5}{9}$ h. $\frac{4}{10}$

i. 1 j. 5

k. 9 l. $\frac{2}{7}$

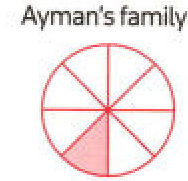
m. $\frac{3}{5}$ n. $\frac{1}{3}+\frac{1}{3}$

o. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

p. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$

14.

Eman's family Ayman's family



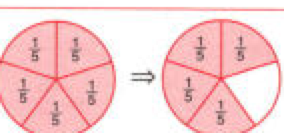
$\frac{1}{6}$ > $\frac{1}{8}$

Eman's family will get larger pieces.

15. $\frac{3}{4}=\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$

He will need to fill the cup 3 times to complete the recipe.

16.



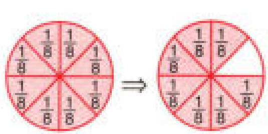
Whole bag The rest

The rest = $\frac{4}{5}$

First way = $\frac{2}{5}+\frac{2}{5}$

Second way = $\frac{1}{5}+\frac{3}{5}$

17.



The fraction that represents the remaining parts is $\frac{7}{8}$

Answers of multiple choice questions

1. C 2. C 3. A
4. D 5. C 6. D
7. A 8. C 9. A
10. C 11. C 12. A

Exercise 2

1. a. A proper fraction
b. An improper fraction
c. An improper fraction
d. A proper fraction
e. A mixed number
f. A mixed number

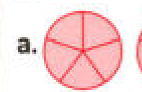
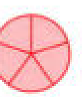
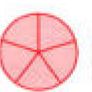
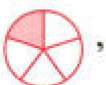
2. a. An improper fraction
b. A mixed number
c. A proper fraction

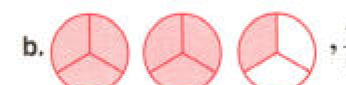
3. a. $2\frac{2}{6}$ b. $1\frac{1}{3}$ c. $3\frac{4}{6}$ d. $2\frac{1}{4}$

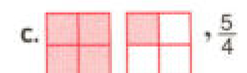
4. a. $\frac{9}{4}=2\frac{1}{4}$ b. $\frac{11}{3}=3\frac{2}{3}$

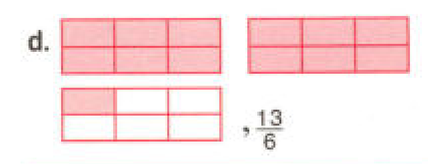
c. $\frac{35}{8}=4\frac{3}{8}$ d. $\frac{24}{8}=3$

5.

a.     , $\frac{16}{5}$

b.  , $\frac{7}{3}$

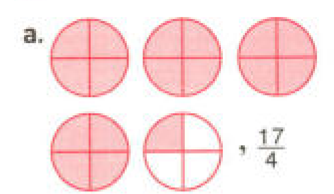
c.  , $\frac{5}{4}$

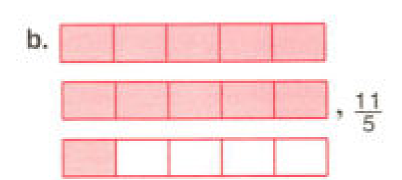
d.  , $\frac{13}{6}$

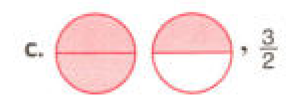
6. a. $\frac{6}{5}$, $1\frac{1}{5}$ b. $\frac{9}{6}$, $1\frac{3}{6}$

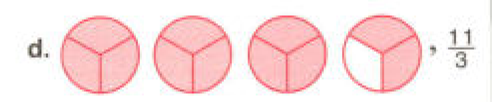
c. $\frac{5}{4}$, $1\frac{1}{4}$ d. $\frac{7}{6}$, $1\frac{1}{6}$

7.

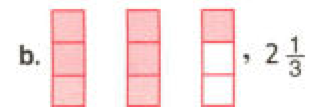
a.  , $\frac{17}{4}$

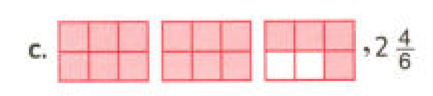
b.  , $\frac{11}{5}$

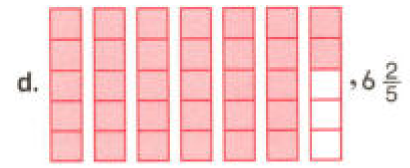
c.  , $\frac{3}{2}$

d.  , $\frac{11}{3}$

(Models may vary)

8. a.  , $1\frac{1}{2}$

b.  , $2\frac{1}{3}$

c.  , $2\frac{4}{6}$

d. , $6\frac{2}{5}$

(Models may vary)

9. a. $\frac{7}{2}$ b. $\frac{13}{6}$ c. $\frac{55}{8}$

d. $\frac{21}{4}$ e. $\frac{21}{5}$ f. $\frac{20}{3}$

g. $\frac{38}{3}$ h. $\frac{37}{4}$ i. $\frac{42}{5}$

10. a. $4\frac{1}{2}$ b. $3\frac{4}{5}$ c. $8\frac{1}{3}$

d. 7 e. $4\frac{2}{8}$ f. 7

g. 9 h. $3\frac{1}{9}$ i. $5\frac{3}{4}$

11. a. less b. improper

c. $\frac{15}{4}$ d. $\frac{7}{2}$ e. $\frac{9}{4}$

f. $\frac{23}{7}$ g. $5\frac{2}{3}$ h. $1\frac{2}{5}$

i. $6\frac{2}{3}$ j. $4\frac{1}{4}$ k. 1 , 2 , 3 , 4

l. 10 m. 21 n. 25

o. 3 p. 4 q. 9

12. a. $\frac{1}{5}$ b. 8 c. $\frac{8}{5}$

13. The perimeter $= \frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8}$

$= \frac{12}{8} = 1\frac{4}{8}$ meter.

Answers of multiple choice questions

1.	A	**2.**	D	**3.**	C
4.	B	**5.**	D	**6.**	C
7.	B	**8.**	C	**9.**	C
10.	B				

Exercise 3

1. a. $\frac{2}{3} + \frac{2}{3} + 1 + 1 + 1 = \frac{4}{3} + 3$

$= 1\frac{1}{3} + 3$

$= 4\frac{1}{3}$

b. $\frac{1}{4} + 1 + \frac{1}{4} + 1 = 2 + \frac{2}{4} = 2\frac{2}{4}$

c. $\frac{2}{4} + 1 + 1 + 1 + \frac{1}{4} = 3 + \frac{3}{4} = 3\frac{3}{4}$

d. $1 + 1 + \frac{2}{5} + \frac{1}{5} = 2 + \frac{3}{5} = 2\frac{3}{5}$

2. a. $\frac{5}{5} = 1$ b. $\frac{7}{9} + 4 = 4\frac{7}{9}$

c. $\frac{11}{12} + 5 = 5\frac{11}{12}$ d. $2 + \frac{3}{7} = 2\frac{3}{7}$

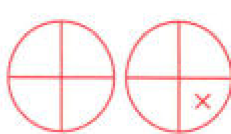
e. $7 + \frac{1}{2} = 7\frac{1}{2}$

f. $4 + \frac{6}{5} = 4 + 1\frac{1}{5} = 5\frac{1}{5}$

g. $6 + \frac{9}{8} = 6 + 1\frac{1}{8} = 7\frac{1}{8}$

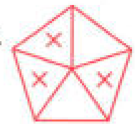
h. $7 + \frac{8}{6} = 7 + 1\frac{2}{6} = 8\frac{2}{6}$

3. a.



$2 - \frac{1}{4} = 1\frac{3}{4}$

b.



$1 - \frac{2}{5} - \frac{1}{5} = \frac{2}{5}$

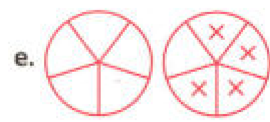
c.

$1 - \frac{2}{5} = \frac{3}{5}$

d.

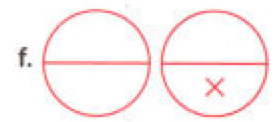
$1 - \frac{2}{8} = \frac{6}{8}$

e.



$2 - \frac{4}{5} = 1\frac{1}{5}$

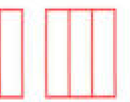
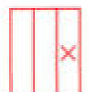
f.



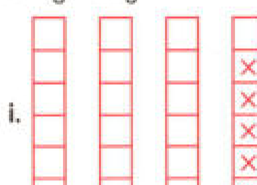
$2 - \frac{1}{2} = 1\frac{1}{2}$

g.

$2 - \frac{2}{3} = 1\frac{1}{3}$

h.  

$3 - \frac{1}{3} = 2\frac{2}{3}$

i. 

$4 - \frac{5}{6} = 3\frac{1}{6}$

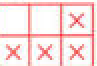
4. a. $\frac{5}{12} + \frac{2}{12} + \frac{6}{12} = \frac{13}{12} = 1\frac{1}{12}$

b. $1 + 2 + \frac{1}{5} + \frac{3}{5} + \frac{4}{5} = 3 + \frac{8}{5}$

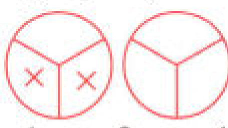
$= 3 + 1\frac{3}{5}$

$= 4\frac{3}{5}$

c. $1 - \frac{3}{6} - \frac{1}{6} = \frac{2}{6}$

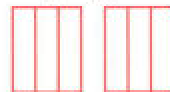
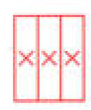


d. $2 - \frac{1}{3} - \frac{1}{3} = 1\frac{1}{3}$



e. $1 + \frac{1}{7} + 2 + \frac{3}{7} = 3 + \frac{4}{7} = 3\frac{4}{7}$

f. $3 - \frac{2}{3} - \frac{1}{3} = 2$

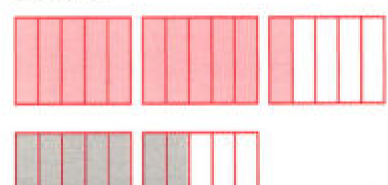
 

5.

a. Number line : $2\frac{1}{5} + \frac{7}{5}$



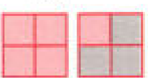
Model :



Equation : $2\frac{1}{5} + 1\frac{2}{5} = 3\frac{3}{5}$

b. Number line : $1\frac{1}{4} + \frac{3}{4}$

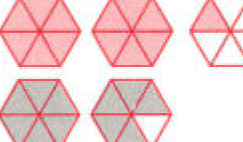


Model : 

Equation : $1\frac{1}{4} + \frac{3}{4} = 1\frac{4}{4} = 2$

c. Number line : $2\frac{1}{6} + \frac{11}{6}$

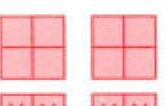
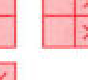


Model : 

Equation : $2\frac{1}{6} + 1\frac{5}{6} = 3\frac{6}{6} = 4$

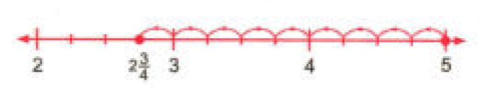
d. Number line : $4\frac{3}{4} - \frac{9}{4}$



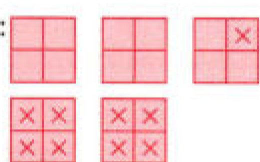
Model :  

Equation : $4\frac{3}{4} - 2\frac{1}{4} = 2\frac{2}{4}$

e. Number line : $5 - \frac{9}{4}$

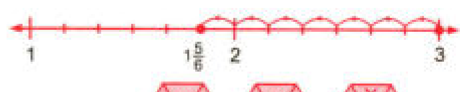


Model :

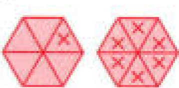


Equation : $5 - 2\frac{1}{4} = 2\frac{3}{4}$

f. Number line : $3 - \frac{7}{6}$

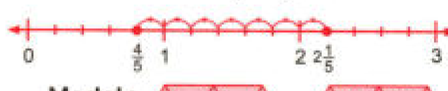


Model :

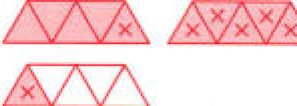


Equation : $3 - 1\frac{1}{6} = 1\frac{5}{6}$

g. Number line : $2\frac{1}{5} - \frac{7}{5}$



Model :



Equation : $2\frac{1}{5} - 1\frac{2}{5} = \frac{4}{5}$

6.
a. $3\frac{6}{9}$
b. $3\frac{7}{5} = 4\frac{2}{5}$
c. $4\frac{3}{5}$
d. $2\frac{1}{6}$
e. $7\frac{6}{6} = 8$
f. $5\frac{4}{7}$
g. $1\frac{1}{5}$
h. $1\frac{4}{9}$
i. $2\frac{1}{7}$
j. $\frac{7}{8}$
k. $1\frac{3}{5}$
l. $6\frac{4}{7}$

7.
a. $3\frac{3}{9}$
b. $1\frac{1}{5}$
c. $\frac{1}{3}$
d. $2\frac{9}{10}$
e. $2\frac{2}{3}$
f. $5\frac{4}{7}$
g. 6
h. 9
i. $\frac{4}{7}$
j. $4\frac{3}{5} - 3\frac{2}{5} = 1\frac{1}{5}$
k. $6\frac{5}{6} - 4\frac{5}{6} = 2$
l. $7\frac{5}{9} - 3\frac{1}{9} = 4\frac{4}{9}$
m. $2\frac{1}{4} + 3\frac{2}{4} = 5\frac{3}{4}$
n. $3\frac{1}{3} + 1\frac{1}{3} = 4\frac{2}{3}$
o. $4\frac{4}{5} - 1\frac{1}{5} = 3\frac{3}{5}$
p. $1\frac{5}{7} + 2\frac{3}{7} = 3\frac{8}{7} = 4\frac{1}{7}$
q. $3 - 1\frac{1}{7} = 1\frac{6}{7}$
r. $4\frac{1}{4} - 2\frac{3}{4} = 1\frac{2}{4}$
s. $5 - 3\frac{1}{4} = 1\frac{3}{4}$

8. Ahmed planted in both of two days $= \frac{3}{9} + \frac{5}{9} = \frac{8}{9}$ of the seeds.

9. Salma bought
$= 3\frac{1}{8} + 1\frac{5}{8} = 4\frac{6}{8}$ kg

10. Seif studied in all $= 1\frac{1}{4} + \frac{3}{4} = 1\frac{4}{4}$
$= 2$ hours

11. What Manar needs more
$= \frac{5}{8} - \frac{2}{8} = \frac{3}{8}$ liter.

12. The difference between waleed and Ali $= 2\frac{3}{8} - 1\frac{1}{8}$
$= 1\frac{2}{8}$ of cakes.

13. The left $= 1 - \frac{3}{4} = \frac{1}{4}$ of the loaf.

×	×	×	

14. The left $= 24\frac{1}{2} - 22\frac{1}{2} = 2$ pounds.

15. The left $= 3\frac{1}{4} - 2\frac{3}{4}$

$= 2\frac{5}{4} - 2\frac{3}{4}$

$= \frac{2}{4}$ cookies.

16. The left $= 2\frac{1}{4} - 1\frac{2}{4} = 1\frac{5}{4} - 1\frac{2}{4}$

$= \frac{3}{4}$ pans of butter.

17. What she will use

$= \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 2$ teaspoons.

18. **For example :** $2\frac{2}{9} + 3\frac{5}{9}$

- Esslam has $2\frac{2}{9}$ kg of apple and his brother has $3\frac{5}{9}$ kg of apple. What is the total mass with Esslam and his brother ?

They has $= 2\frac{2}{9} + 3\frac{5}{9} = 5\frac{7}{9}$ kg

[Answer may vary]

Answers of multiple choice questions

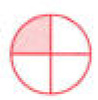
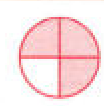
1.	D	**2.**	C	**3.**	A
4.	B	**5.**	D	**6.**	A
7.	B	**8.**	B	**9.**	D
10.	A	**11.**	A	**12.**	C
13.	B				

Exercise 4

1. a. $\frac{5}{8} > \frac{3}{8}$ b. $\frac{2}{5} < \frac{2}{3}$ c. $\frac{1}{4} < \frac{2}{4}$

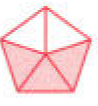
d. $\frac{3}{6} = \frac{3}{6}$ e. $\frac{4}{5} > \frac{4}{6}$ f. $\frac{5}{8} < \frac{5}{6}$

2. a.

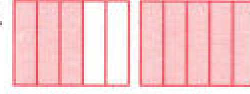
$\frac{1}{4} < \frac{3}{4}$

b.



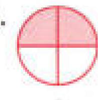
$\frac{3}{5} > \frac{3}{10}$

c.



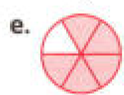
$\frac{3}{5} < \frac{5}{5}$

d.



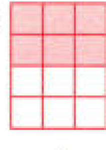
$\frac{2}{4} < \frac{2}{3}$

e.



$\frac{5}{6} > \frac{4}{6}$

f.



$\frac{6}{12} < \frac{6}{10}$

3. a. $>$ b. $<$ c. $<$

d. $<$ e. $<$ f. $<$

g. $<$ h. $<$ i. $>$

j. $>$ k. $>$ l. $>$

4. a. $\frac{2}{5}$ b. $\frac{1}{4}$ c. $\frac{3}{8}$

d. $\frac{4}{9}$ e. $\frac{5}{8}$ f. $\frac{3}{3}$

g. $\frac{4}{5}$ h. $\frac{8}{10}$

5. a. $\frac{1}{11}, \frac{4}{11}, \frac{6}{11}, \frac{9}{11}$

b. $\frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{8}{7}$

c. $\frac{1}{8}, \frac{2}{8}, \frac{3}{8}, \frac{5}{8}, \frac{6}{8}, \frac{7}{8}, \frac{8}{8}$

d. $\frac{2}{10}, \frac{2}{9}, \frac{2}{5}, \frac{2}{4}, \frac{2}{3}$

e. $\frac{3}{12}, \frac{3}{8}, \frac{3}{6}, \frac{3}{5}$

f. $\frac{3}{12}, \frac{3}{8}, \frac{3}{6}, \frac{3}{5}, \frac{3}{3}$

g. $\frac{1}{3}, 1, \frac{5}{3}$

6. a. $\frac{5}{7}, \frac{4}{7}, \frac{3}{7}, \frac{1}{7}$

b. $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{7}, \frac{1}{10}$

c. $\frac{7}{11}, \frac{5}{11}, \frac{4}{11}, \frac{3}{11}, \frac{2}{11}$

d. $\frac{5}{5}, \frac{5}{6}, \frac{5}{7}, \frac{5}{9}, \frac{5}{11}$

7. a. $<$ b. $<$

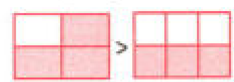
c. Yes, because improper fractions are greater than 1 , so they always are greater than the proper fractions.

8. Othman ate more

because $\frac{4}{6} > \frac{4}{8}$

9. Lamia ate more than Ganna.

because $\frac{3}{4} > \frac{3}{6}$



10. I perfere $\frac{6}{12}$ of candy bar

because $\frac{6}{12} > \frac{5}{12}$

Answers of multiple choice questions

1.	A	2.	A	3.	B
4.	C	5.	D	6.	C
7.	A	8.	D	9.	C
10.	A	11.	B	12.	C

Exercise 5

1. a. Equivalent b. Equivalent

c. Not equivalent

d. Not equivalent

e. Not equivalent f. Equivalent

2. a. 2 b. 4 c. 2

d. 8 e. 14 f. 18

g. 6 h. 3 i. 6

3. a. $\frac{4}{10}$ b. $\frac{8}{12}$ c. $\frac{2}{12}$

d. $\frac{3}{4} = \frac{6}{8}$ e. $\frac{1}{3} = \frac{4}{12}$ f. $\frac{4}{9} = \frac{8}{18}$

4. a. (1) Equivalent

(2) Not equivalent

(3) Equivalent

(4) Not equivalent

(5) Equivalent

(6) Not equivalent

b. $\frac{2}{8}$, $\frac{3}{12}$ c. $\frac{4}{6}$, $\frac{6}{9}$ or $\frac{8}{12}$

5. a. 4 b. 8 c. 4 d. 9

6. a. $\frac{2}{4}$ b. $\frac{6}{4}$ c. $\frac{8}{4}$

d. $\frac{2}{4}$ e. $\frac{1}{4}$ f. $\frac{4}{4}$

Answers of multiple choice questions

1.	D	2.	B	3.	B
4.	C	5.	D	6.	D
7.	B	8.	A		

Exercise 6

First Problems on benchmark fractions

1.

a. Number line: 0, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{7}{8}$, 1

$\frac{1}{2}$, 1 , 0 , $\frac{1}{2}$

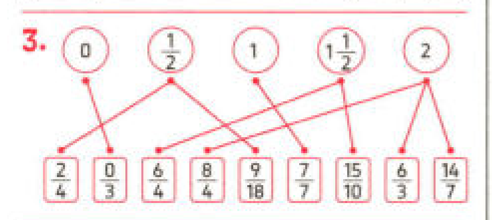
b. Number line: 0, $\frac{2}{12}$, $\frac{5}{12}$, $\frac{1}{2}$, $\frac{7}{12}$, $\frac{10}{12}$, 1

1 , $\frac{1}{2}$, $\frac{1}{2}$, 0

2.

Fraction	Number line	0	$\frac{1}{2}$	1
$\frac{2}{4}$	0, $\frac{2}{4}$, 1		✔	
$\frac{1}{6}$	0, $\frac{1}{6}$, 1	✔		
$\frac{7}{8}$	0, $\frac{7}{8}$, 1			✔
$\frac{4}{10}$	0, $\frac{4}{10}$, 1		✔	

3.



4. a. [1] At the beginning : $0 = \frac{0}{8}$

At the middle : $\frac{1}{2} = \frac{4}{8}$

At the end $= 1 = \frac{8}{8}$

[2] At the beginning : $0 = \frac{0}{10}$

At the middle : $\frac{1}{2} = \frac{5}{10}$

At the end $= 1 = \frac{10}{10}$

• 0

[3] At the beginning : $0 = \frac{0}{12}$

At the middle : $\frac{1}{2} = \frac{6}{12}$

At the end $= 1 = \frac{12}{12}$

a. $\frac{1}{2}$ b. 1

b. Sherif must place the benches at :

0 km , $\frac{2}{4}$ km , $\frac{4}{4}$ km , $\frac{6}{4}$ km , 2 km

Second Problems on comparing fractions using benchmark fractions

1. a. > , > , > b. < , < , <

c. > , > , > d. > , > , >

2. a. > b. > c. =

d. > e. = f. <

g. > h. > i. >

j. < k. < l. >

3. a. $\frac{2}{10}$, $\frac{3}{6}$, $\frac{6}{8}$ b. $\frac{2}{6}$, $\frac{5}{10}$, $\frac{7}{12}$

c. $\frac{9}{9}$, $\frac{5}{6}$, $\frac{1}{4}$ d. $\frac{5}{5}$, $\frac{10}{11}$, $\frac{10}{20}$

4. a. $\frac{2}{5}$ b. $\frac{7}{16}$

Story problems

1.

First cake ⟶ $\frac{5}{10} = \frac{1}{2}$

Second cake ⟶ $\frac{5}{6} > \frac{1}{2}$

So, the second cake had more eaten.

2.

Rashad ate more because

$\frac{4}{8} = \frac{1}{2}$, $\frac{4}{6} > \frac{1}{2}$

3.

Mariam ate $\frac{4}{12}$ and $\frac{4}{12} < \frac{1}{2}$

Jana ate $\frac{3}{6}$ and $\frac{3}{6} = \frac{1}{2}$

Then , Jana ate more than Mariam.

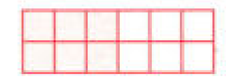
4.

Hatem made $\frac{14}{18}$ and $\frac{14}{18} > \frac{1}{2}$

Amir made $\frac{8}{16}$ and $\frac{8}{16} = \frac{1}{2}$

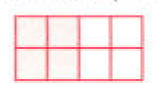
So, Hatem made a larger fraction of the shots taken.

5. Mazen's candy bar



Mazen ate $\frac{1}{2}$ of the bar

Ezz's candy bar



Ezz ate $\frac{1}{2}$ of the bar

But the two candy bars are not the same size.

So, $\frac{1}{2}$ of Mazen's bar > $\frac{1}{2}$ of Ezz's bar

6. A

Answers of multiple choice questions

1. A **2.** B **3.** B
4. B **5.** B **6.** C
7. C **8.** D **9.** C
10. B **11.** B

Concept 3 Multiplication and Fractions

Exercise 7

1. a. $\frac{4}{12}$ b. $\frac{10}{25}$ c. $\frac{6}{14}$

d. $\frac{1}{2}$ e. $\frac{1}{2}$

f. $(\div 10)$, $\frac{2}{5}$

2. a. $\frac{8}{12}$ b. $\frac{6}{8}$ c. $\frac{18}{21}$

d. $\frac{18}{22}$ e. $\frac{56}{72}$ f. $\frac{80}{130}$

g. 3 h. $\frac{4}{4}$

3. a. $\frac{2}{12}$ b. $\frac{6}{9}$ c. $\frac{1}{3}$

d. $\frac{1}{5}$ e. $\frac{2}{3}$ f. $\frac{3}{3}$

g. $\frac{4}{5}$ h. $\frac{14}{16}$

[Answers may vary]

4. a. $\frac{4}{10} = \frac{6}{15} = \frac{8}{20}$ b. $\frac{1}{3} = \frac{3}{9} = \frac{5}{15}$

c. $\frac{8}{12} = \frac{12}{18} = \frac{20}{30}$ d. $\frac{8}{20} = \frac{12}{30} = \frac{16}{40}$

e. $\frac{1}{3} = \frac{2}{6} = \frac{4}{12}$ f. $\frac{2}{10} = \frac{1}{5} = \frac{5}{25}$

[Answers may vary]

5. a. $\frac{4}{6}$, $\frac{6}{9}$, $\frac{8}{12}$, $\frac{10}{15}$, $\frac{12}{18}$

b. $\frac{1}{2}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$, $\frac{6}{12}$

c. $\frac{6}{10}$, $\frac{9}{15}$, $\frac{12}{20}$, $\frac{15}{25}$, $\frac{30}{50}$

d. $\frac{1}{3}$, $\frac{2}{6}$, $\frac{4}{12}$, $\frac{5}{15}$, $\frac{6}{18}$

[Answers may vary]

6. a. True b. False c. False

d. False e. False f. True

g. True h. False i. False

7. a. 15 b. 10 c. 10 d. 9

e. 4 f. 15 g. 45 h. 45

i. 1 j. 6 k. 16 l. 1

m. 39 n. 3 o. 4 p. 6

q. 15 r. 15 s. 12 t. 5

8. a. 3 b. 3 c. 5

d. 1 e. 15 f. 6

9. a. 2 , $1 = \frac{2}{2}$ b. 4 , $1 = \frac{4}{4}$

c. 10 , $1 = \frac{10}{10}$

d. $\frac{2}{2} = \frac{4}{4} = \frac{10}{10}$, when the numerator and denominator are the same , the fraction is equivalent to 1.

e. 25

10.

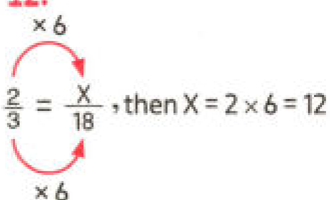
$\frac{2}{3} = \frac{?}{9}$ (× 3 numerator, × 3 denominator), then the number of cookies $= 2 \times 3 = 6$ cookies.

11.

$\frac{3}{5} = \frac{X}{15}$ (× 3 numerator, × 3 denominator), then $X = 3 \times 3 = 9$

So, there are 9 chocolate cakes.

12.



$\frac{2}{3} = \frac{X}{18}$ (× 6), then X = 2 × 6 = 12

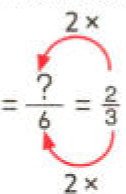
So, there are 12 red apples.

13.

The fraction of Sally's team

$= \frac{10}{15} = \frac{2}{3}$ (÷ 5)

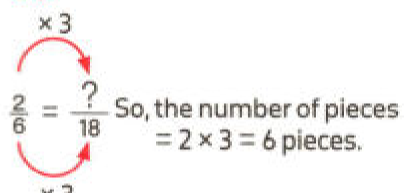
The fraction of Fatma's team.



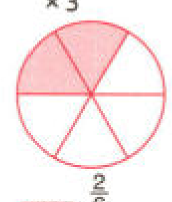
$= \frac{?}{6} = \frac{2}{3}$ (2 ×)

So, Fatma's team won 2 × 2 = 4 games.

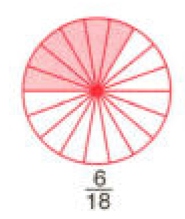
14.



$\frac{2}{6} = \frac{?}{18}$ (× 3) So, the number of pieces = 2 × 3 = 6 pieces.



$\frac{2}{6}$



$\frac{6}{18}$

15. The simplest form of what Omar gave his friend Heba

$= \frac{3}{12} = \frac{3 \div 3}{12 \div 3} = \frac{1}{4}$

16. a. $\frac{6}{12}$ or $\frac{1}{2}$ (6 pieces)

b. $\frac{4}{12}$ or $\frac{1}{3}$ (4 pieces)

c. $\frac{2}{12}$ or $\frac{1}{6}$ d. $\frac{4}{24}$ or $\frac{2}{12}$

17. $\frac{1}{3}$

Answers of multiple choice questions

1.	C	**2.**	B	**3.**	D	**4.**	C
5.	D	**6.**	C	**7.**	B	**8.**	A
9.	A	**10.**	C	**11.**	B	**12.**	A

Exercise 8

1. a.

Addition sentence : $\frac{1}{5} + \frac{1}{5}$

Multiplication sentence : $2 \times \frac{1}{5}$

b.

Addition sentence : $\frac{1}{7} + \frac{1}{7} + \frac{1}{7}$

Multiplication sentence : $3 \times \frac{1}{7}$

c.

Addition sentence :

$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

Multiplication sentence : $5 \times \frac{1}{8}$

d.

Addition sentence :

$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

Multiplication sentence : $4 \times \frac{1}{6}$

2. a. Fraction : $\frac{5}{6}$

Addition sentence :

$\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

Multiplication sentence : $5\times\frac{1}{6}$

b. Fraction : $\frac{3}{5}$

Addition sentence : $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

Multiplication sentence : $3\times\frac{1}{5}$

c. Fraction : $\frac{2}{4}$

Addition sentence : $\frac{1}{4}+\frac{1}{4}$

Multiplication sentence : $2\times\frac{1}{4}$

d. Fraction : $\frac{6}{8}$

Addition sentence :

$\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$

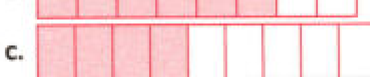
Multiplication sentence : $6\times\frac{1}{8}$

3. a.

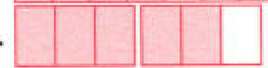


b.

c.



d.



4.

a. $\frac{7}{8}$	b. $\frac{7}{9}$	c. $\frac{4}{9}$
d. $\frac{8}{9}$	e. $\frac{3}{4}$	f. $\frac{4}{5}$
g. $\frac{3}{3}=1$	h. $\frac{9}{7}$	i. $\frac{6}{9}$

5. a. ⟶ 3 b. ⟶ 1

c. ⟶ 5 d. ⟶ 2

e. ⟶ 4

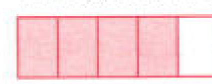
6. What she drinks

$=\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=\frac{4}{5}$

"Sum of unit fractions"

What she drinks $=4\times\frac{1}{5}=\frac{4}{5}$

"Multiplication sentence"



"Bar model"

7. What it will take $=\frac{2}{6}\times 2$

$=\frac{4}{6}$ of a bag of flour.

8. Khalid ate $=\frac{1}{6}\times 24=\frac{24}{6}$

$=4$ pieces.

9. Number of chocolate cake

$=\frac{2}{3}\times 9=\frac{18}{3}=6$ chocolate cakes.

10. Number of hours

$=\frac{1}{3}\times 24=\frac{24}{3}=8$ hours.

11. When we multiply a proper fraction and a whole number (except 0 and 1) the product is less than the whole number factor ، but greater than the fraction factor. This is different from multiplying two whole numbers because the product is always greater than either factor.

Answers of multiple choice questions

1.	D	2.	B	3.	B	4.	C
5.	C	6.	A	7.	B	8.	A
9.	A	10.	B	11.	B		

Unit 9 Assessment

1.

1. B
2. C
3. D
4. C
5. B
6. C
7. B

2.

1. $3\frac{2}{9}$
2. 25
3. $5\frac{4}{5}$
4. $6\frac{5}{6}$
5. $5\frac{4}{7}$
6. $1\frac{7}{9}$
7. $\frac{2}{4}$
8. $3\frac{5}{7}$

3.

1. C
2. D
3. C
4. B
5. C
6. D
7. D

4.

1. What Sara needs $= \frac{7}{10} - \frac{2}{10} = \frac{5}{10}$ of a jug of milk.
2. The order is : $\frac{9}{9}, \frac{7}{9}, \frac{5}{9}, \frac{4}{9}, \frac{1}{9}$
3. The order is : $\frac{3}{8}, \frac{5}{10}, \frac{7}{9}$
4. The total amount $= 3\frac{4}{6} + 2\frac{2}{6}$

   $= 5\frac{6}{6} = 6$ kg

Answers of unit

10

Decimals

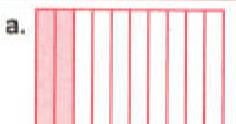
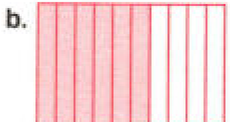
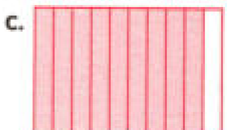
- **Concept 1 :** Understanding Decimals
- **Concept 2 :** Decimals and Fractions
- **Concept 3 :** Operations on Decimals



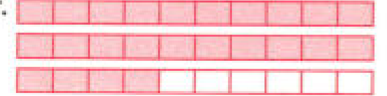
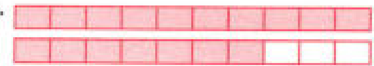
Exercise 9

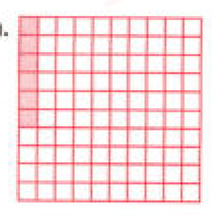
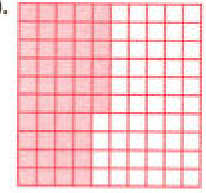
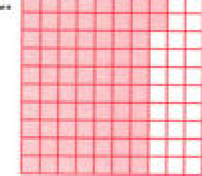
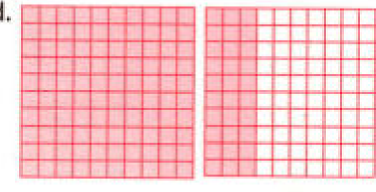
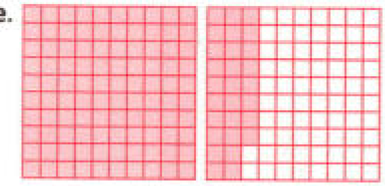
1. a. 0.3 b. 0.8 c. 0.4
   d. 0.7 e. 0.5 f. 2.8
   g. 1.2

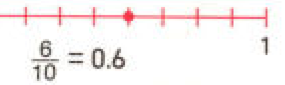
2. a. 0.46 b. 0.13
   c. 0.98 d. 1.33
   e. 1.03

3. a.

b.

c.

d.

e.

f.

g.


4. a.

b.

c.

d.

e.


5. a.


$\frac{6}{10} = 0.6$

b. 0 1
$\frac{8}{10} = 0.8$

c. 0 — $\frac{4}{10} = 0.4$ — 1

d. 0 — $\frac{1}{10} = 0.1$ — 1

e. 0 — $\frac{5}{10} = 0.5$ — 1

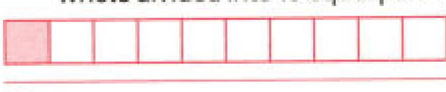
f. 0 — $\frac{9}{10} = 0.9$ — 1

6. a. 0.7 b. 0.5 c. 0.3
d. 0.2 e. 0.27 f. 0.15
g. 0.07 h. 0.03

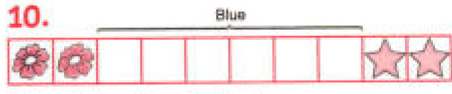
7. a. $\frac{2}{10}$ b. $\frac{6}{10}$ c. $\frac{8}{10}$
d. $\frac{1}{10}$ e. $\frac{23}{100}$ f. $\frac{69}{100}$
g. $\frac{8}{100}$ h. $\frac{2}{100}$

8. a. $\frac{4}{10} = 0.4$ b. $\frac{7}{10} = 0.7$
c. $\frac{9}{10} = 0.9$ d. $\frac{5}{10} = 0.5$
e. $\frac{4}{10} = 0.4$ f. $\frac{64}{100} = 0.64$
g. $\frac{76}{100} = 0.76$ h. $\frac{3}{100} = 0.03$
i. $\frac{21}{100} = 0.21$ j. $\frac{49}{100} = 0.49$

9. $0.1 = \frac{1}{10}$ and $\frac{1}{10}$ means 1 from a whole divided into 10 equal parts.

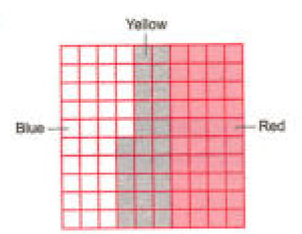


10.



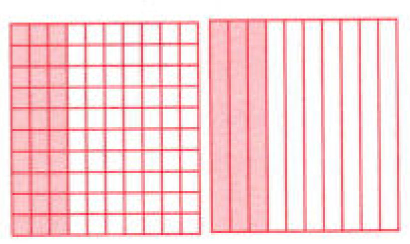
0.2 of the strip had stars.

11.



Yellow part = 0.25

12. Adel is correct , 0.30 and 3 tenths [0.3] represent the same amount.



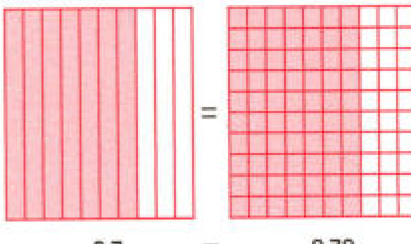
13. Length of the paper clip = 5 cm

Fraction : $\frac{5}{100}$ m

Decimal : 0.05 m

14.

0.70 is equal to 0.7
Because they represent the same amount.



15. The error is $0.20 \neq \frac{2}{100}$

Because $\frac{2}{100} = 0.02$ [not 0.20]

Answers of multiple choices questions

1. B 2. A 3. D
4. B 5. B 6. D
7. D 8. C 9. B
10. D

Exercise 10

1. a. 1.2 b. 2.36 c. 1.1
d. 1.1 e. 0.15 f. 1.25

2. a. 30 b. 9
c. 500 d. 8

e. For example :

5 in the hundredths place is 0.05 and

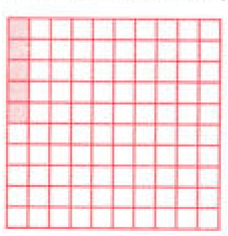
5 in the tenths place is 0.5

$0.05 = \frac{5}{100}$, $0.5 = \frac{5}{10}$

and we know that $\frac{5}{100} < \frac{5}{10}$

Also :

0.05 represented by



and 0.5 represented by



We notic that 0.05 < 0.5

3. a. 7.98 b. 0.29 c. 5.34
d. 0.67 e. 1.04

4. a. 0.6 or $\frac{6}{10}$ b. 0.05 or $\frac{5}{100}$
c. 9 d. Tenths
e. Ones f. Hundredths

5. a. 5.51 b. 2.07 c. 7.09
d. 5.82 e. 9.43 f. 4.07
g. 0.47

6. a. Four and fifty-three hundredths.
b. Forty-eight hundredths.
c. Seven and eight tenths.
d. Three and seventy-one hundredths.
e. Two and thirteen hundredths.
f. Four and two hundredths.
g. Seven and thirty-seven hundredths.
h. Two and nine hundredths.

7. a. 4 + 0.7 + 0.03 b. 2 + 0.04
c. 2 + 0.50 d. 1 + 0.1 + 0.08
e. 5 + 0.6 + 0.08 f. 6 + 0.1 + 0.04

8. a. 4 Ones , 5 Tenths , 2 Hundredths
b. 8 Ones , 5 Tenths
c. 7 Ones , 3 Tenths , 4 Hundredths.
d. 1 Tenths , 4 Hundredths
e. 6 Tenths , 9 Hundredths
f. 7 Ones , 6 Tenths , 1 Hundredths

9. a. • Three and twenty - seven hundredths
• 3 + 0.2 + 0.07
b. • 4 + 0.2 + 0.07
• 4 Ones , 2 Tenths , 7 Hundredths
c. decimal form ⟶ 5.45
word form ⟶ five and forty five hundredths

10. a. **Standard form :** 2.19
Word form :
Two and nineteen hundredths
Unit form :
2 Ones , 1 Tenth , 9 Hundredths
Expanded form : 2 + 0.1 + 0.09
b. **Standard form :** 0.33
Word form :
Thirty-three hundredths
Unit form :
3 Tenths , 3 Hundredths
Expanded form : 0.3 + 0.03
c. **Standard form :** 4.58
Word form :
Four and fifty-eight hundredths
Unit form : 4 Ones , 5 Tenths , 8 Hundredths
Expanded form : 4 + 0.5 + 0.08
d. **Standard form :** 4.10 = 4.1
Word form :
Four and one tenth
Unit form : 4 Ones , 1 Tenth
Expanded form : 4 + 0.1
e. **Standard form :** 1.03
Word form :
One and three hundredths
Unit form :
1 One , 3 Hundredths
Expanded form : 1 + 0.03

11.

a. 0.7	b. 0.09	c. 22.35
d. 18.6	e. 5.68	f. 2.35
g. 5.05	h. 5.3	i. 60.8
j. 2.19	k. 0.9	l. 4.38
m. 6.66	n. 38.6	o. 0.4
p. 3.33		

12. 2.68

Answers of multiple choice questions

1. C	2. B	3. B
4. B	5. A	6. B
7. D	8. B	9. C
10. C	11. C	12. D
13. D	14. B	

Concept 2 Decimals and Fractions

Exercise 11

1. a. $\frac{9}{10}$, 0.9 b. $\frac{6}{10}$, 0.6

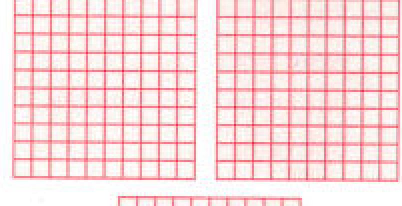
c. $\frac{38}{100}$, 0.38 d. $\frac{65}{100}$, 0.65

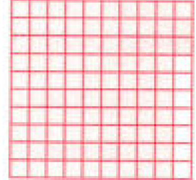
e. $2\frac{47}{100}$, 2.47 f. $2\frac{3}{10}$, 2.3

2.

a.

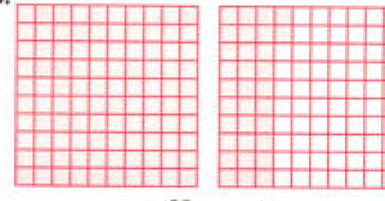






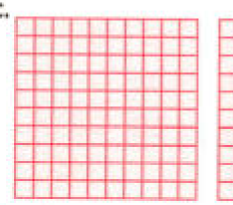
$2\frac{93}{100}$

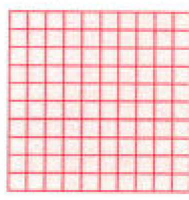
b.

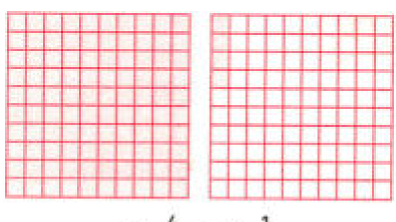


$1\frac{32}{100} = 1\frac{8}{25}$

c.

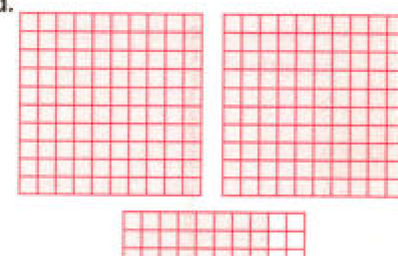


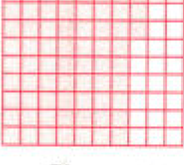




$3\frac{4}{100} = 3\frac{1}{25}$

d.





$2\frac{74}{100} = 2\frac{37}{50}$

3. a. $\frac{3}{10}$ b. $6\frac{28}{100}$ or $\frac{628}{100}$

c. $3\frac{27}{100}$ or $\frac{327}{100}$ d. $\frac{23}{100}$

e. $2\frac{20}{100}$ or $\frac{220}{100}$ f. $3\frac{4}{10}$ or $\frac{34}{10}$

g. $10\frac{5}{100}$ or $\frac{1005}{100}$ h. $\frac{2}{100} = \frac{1}{50}$

i. $\frac{67}{100}$

4. a. 10 b. 300

c. 100 d. 20

e. 500 f. 1000

5. a. 30 , $\frac{30}{10}$ b. 10 , $\frac{10}{10}$

c. 40 , $\frac{40}{10}$ d. 15 , $\frac{15}{10}$

e. 23 , $\frac{23}{10}$ f. 108 , $\frac{108}{10}$

6. a. 100 , $\frac{100}{100}$ b. 300 , $\frac{300}{100}$

c. 1900 , $\frac{1900}{100}$ d. 150 , $\frac{150}{100}$

e. 230 , $\frac{230}{100}$ f. 1080 , $\frac{1080}{100}$

g. 1320 , $\frac{1320}{100}$ h. 40 , $\frac{40}{100}$

7. a. 24 b. 75 c. 520

d. 374 e. 895 f. 19

g. 143 h. 18 $\frac{5}{10}$ or $\frac{185}{10}$

i. $\frac{34}{10}$ j. 19 k. 3 $\frac{7}{10}$

l. 0.45 m. 19.8 n. $\frac{291}{100}$

o. 2 $\frac{5}{10}$ p. 1 $\frac{86}{100}$

q. $\frac{157}{10}$ r. $\frac{2525}{100}$

8. • 50.1 cm • [501 tenths] cm

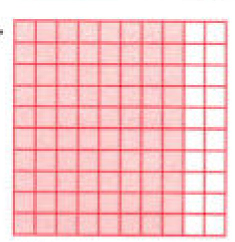
9. • 38 students • 38 hundredths

Answers of multiple choice questions

1.	A	2.	B	3.	C
4.	B	5.	A	6.	B
7.	B	8.	A	9.	A
10.	D	11.	C	12.	C
13.	D	14.	C		

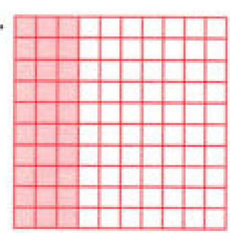
Exercise 12

1. a.



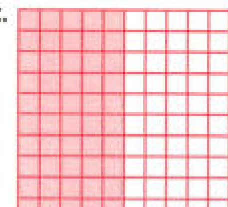
$\frac{80}{100}$, 0.80

b.



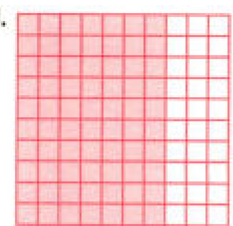
$\frac{3}{10}$, 0.3

c.



$\frac{50}{100}$, 0.50

d.



$\frac{7}{10} = \frac{70}{100}$, 0.7 = 0.70

2. a. equivalent
b. not equivalent
c. not equivalent
d. not equivalent
e. not equivalent
f. equivalent

3. a. 0.80 b. 0.70 c. 0.9
d. 0.20 e. 0.50 f. 0.1
g. 0.4 h. 0.60

4. a. equivalent
b. not equivalent
c. equivalent
d. not equivalent
e. equivalent
f. not equivalent

5. a. $\frac{70}{100}$ b. $\frac{8}{10}$ c. $\frac{90}{100}$
d. $\frac{40}{100}$ e. $\frac{1}{10}$ f. $\frac{2}{10}$
g. $\frac{30}{100}$ h. $\frac{5}{10}$

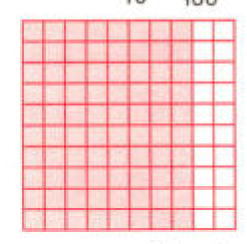
6. a. $\frac{10}{100}$, 0.10 b. $\frac{7}{10}$, 0.7
c. $\frac{60}{100}$, 0.60 d. $\frac{40}{100}$, 0.40
e. $\frac{3}{10}$, 0.3 f. $\frac{90}{100}$, 0.90
g. $\frac{100}{100}$, 1 h. $1\frac{40}{100}$, 1.40
i. $2\frac{10}{100}$, 2.10 j. $3\frac{3}{10}$, 3.3

7. a. $\frac{5}{10} = \frac{50}{100}$ b. $\frac{20}{100} = \frac{2}{10}$
c. $\frac{4}{10} = \frac{40}{100}$ d. $\frac{200}{100} = \frac{20}{10}$
e. $\frac{70}{100} = \frac{7}{10}$ f. $\frac{80}{10} = \frac{800}{100}$
g. $\frac{3}{10} = \frac{30}{100}$ h. $\frac{60}{100} = \frac{6}{10}$
i. $\frac{70}{10} = \frac{700}{100}$ j. $\frac{900}{100} = \frac{90}{10}$
k. $\frac{8}{10} = \frac{80}{100}$ l. $\frac{10}{100} = \frac{1}{10}$

8.



$0.8 = \frac{8}{10} = \frac{80}{100} = 0.80$



$0.80 = \frac{80}{100} = \frac{8}{10} = 0.8$

Answers of multiple choice questions

1.	A	**2.**	B	**3.**	D
4.	C	**5.**	A	**6.**	C
7.	A	**8.**	C	**9.**	D
10.	D	**11.**	D	**12.**	D

Exercise 13

1.

a. 0.34 < 0.4

Ones	Decimal point	Tenths	Hundredths
0	•	3	4
0	•	4	0

b. 0.45 > 0.04

Ones	Decimal point	Tenths	Hundredths
0	•	4	5
0	•	0	4

c. 0.23 < 0.3

Ones	Decimal point	Tenths	Hundredths
0	•	2	3
0	•	3	0

d. 0.54 > 0.45

Ones	Decimal point	Tenths	Hundredths
0	•	5	4
0	•	4	5

e. 0.62 > 0.26

Ones	Decimal point	Tenths	Hundredths
0	•	6	2
0	•	2	6

f. 0.80 > 0.09

Ones	Decimal point	Tenths	Hundredths
0	•	8	0
0	•	0	9

g. 0.73 > 0.69

Ones	Decimal point	Tenths	Hundredths
0	•	7	3
0	•	6	9

h. 0.10 = 0.1

Ones	Decimal point	Tenths	Hundredths
0	•	1	0
0	•	1	0

i. 0.49 > 0.04

Ones	Decimal point	Tenths	Hundredths
0	•	4	9
0	•	0	4

j. 0.27 < 0.7

Ones	Decimal point	Tenths	Hundredths
0	•	2	7
0	•	7	0

2.

a. > b. > c. >
d. = e. > f. >
g. < h. < i. <
j. > k. < l. >
m. > n. > o. >
p. < q. > r. >

3.

a. < b. > c. >
d. > e. > f. >
g. < h. < i. >
j. > k. > l. <
m. = n. < o. <
p. <

4. 3.52 , 3.3 , 3.9

5. 2.1 , 0.7 , 2.03

6. Adam drank more , because 0.6 > 0.4

7. Hany walks the longer distance , because 0.44 < 0.6

8. The second bottle has more olive oil , because 0.73 > 0.5

9.

Fruit	Ones	Decimal Point	Tenths	Hundredths
Figs	1	•	3	0
Mangoes	2	•	0	1
Plums	1	•	2	1
Pomegranates	2	•	2	5

a. Plums

b. Pomegranates

c. Figs , Mangoes and Pomegrantes

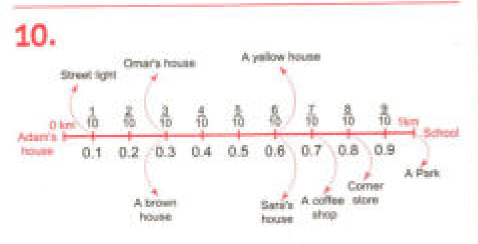
d. Plums , Figs

e. Pomegranates > Mangoes

[Answers may vary]

f. Plums < Figs [Answers may vary]

10.

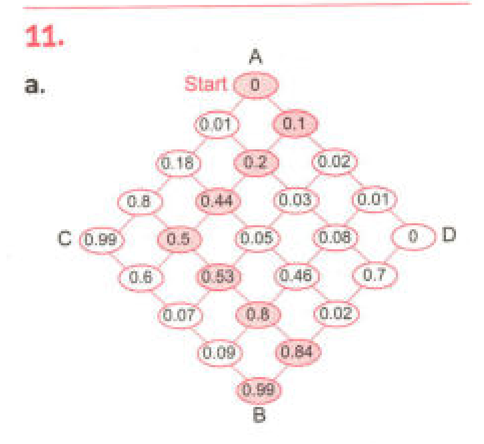


a. Sara's house b. Coffee shop

c. Omar d. Sara e. $\frac{2}{10}$ km

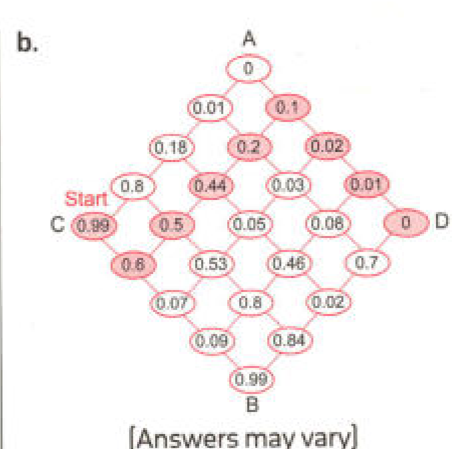
11.

a.



[Answers may vary]

b.



[Answers may vary]

Answers of multiple choice questions

1.	C	**2.**	A	**3.**	B
4.	B	**5.**	C	**6.**	D
7.	A	**8.**	D	**9.**	A
10.	B	**11.**	A	**12.**	B
13.	C	**14.**	A	**15.**	B
16.	C				

Exercise 14

1. a. 60 b. 30 c. 100

d. 10 e. 10 f. 10

g. 10 h. 9 i. 1

2. a. 3 "by dividing by 10"

b. 100 "by multiplying by 10"

c. 20 "by multiplying by 10"

d. 9 "by dividing by 10"

e. 5 "by dividing by 10"

f. 10 "by dividing by 10"

g. 10 "by dividing by 10"

h. 400 "by multiplying by 10"

i. 10 "by dividing by 10"

j. 80 "by multiplying by 10"

3. a. $\frac{45}{100}$ b. $\frac{93}{100}$

c. $\frac{50}{100}$ or $\frac{5}{10}$ d. $\frac{75}{100}$

e. $\frac{87}{100}$ f. $\frac{12}{10} = 1\frac{2}{10}$

g. $2\frac{72}{100}$ h. $1\frac{80}{100}$ or $1\frac{8}{10}$

4. a. 60 , 83 b. 6 , 13

c. 30 , $\frac{38}{100}$ d. 90 , $\frac{113}{100}$

e. 50 , $\frac{82}{100}$ f. 60 , $\frac{142}{100}$

5. a. $\frac{52}{100}$ b. $\frac{44}{100}$

c. $\frac{100}{100} = 1$ d. $\frac{70}{100}$ or $\frac{7}{10}$

e. $\frac{100}{100} = 1$ f. $\frac{90}{100}$ or $\frac{9}{10}$

g. $\frac{101}{100} = 1\frac{1}{100}$ h. $\frac{104}{100} = 1\frac{4}{100}$

i. $6\frac{35}{100}$ j. 0.63

k. 0.89 l. 0.76

m. 1.26 n. 16.47

o. 11.42

6. He have in all $= \frac{5}{10} + \frac{40}{100}$

$= \frac{50}{100} + \frac{40}{100} = \frac{90}{100}$ or $\frac{9}{10}$ l of juice

7. Hosam walked $= \frac{5}{10} + \frac{21}{100}$

$= \frac{50}{100} + \frac{21}{100} = \frac{71}{100}$ kilometer

8. The total $= \frac{8}{10} + \frac{25}{100} = \frac{80}{100} + \frac{25}{100}$

$= \frac{105}{100} = 1\frac{5}{100}$ meter

9. She used $= 1\frac{5}{10} + 1\frac{25}{100}$

$= 1\frac{50}{100} + 1\frac{25}{100} = 2\frac{75}{100}$ kilogram

10. What she had $= \frac{8}{10} + \frac{25}{100} = \frac{105}{100}$

$= 1\frac{5}{100}$ meter

11. What he has $= \frac{5}{10} + \frac{65}{100} = \frac{115}{100}$

$= 1\frac{15}{100} > 1$

Yes, he has more than 1 liter

12. The perimeter

$= [\frac{3}{10} + \frac{3}{10}] + [\frac{12}{100} + \frac{12}{100}]$

$= \frac{6}{10} + \frac{24}{100} = \frac{84}{100}$ cm.

Answers of multiple choice questions

1.	C	**2.**	C	**3.**	C
4.	B	**5.**	B	**6.**	B
7.	D	**8.**	A	**9.**	C
10.	B	**11.**	A	**12.**	B

Unit 10 Assessment

1. a. A b. B c. A

d. B e. C f. A

g. C

2. a. $\frac{75}{100}$ b. 57

c. three and sixteen hundredths.

d. tenths e. 6.08 f. 2170

g. 3.7 h. 50.3

3. a. D b. C c. B

d. C e. B f. C

g. C

4. 1. Amira bought less , because $1.5 < 1.6$

2. Adam drank 0.6 liter

Omar drank 0.4 liter $0.6 > 0.4$

So, Omar drank more.

3. Samy have in all $= \frac{5}{10} + \frac{35}{100}$

$= \frac{50}{100} + \frac{35}{100} = \frac{85}{100}$ liters

4. Maha is wrong , word form

seven and 3 hundredths

Answers of unit

11

Data with Fractions

▸ **Concept 1 :** Creating and Analyzing Graphs



Exercise 15

1.

	Favorite activities				
Activity	Drawing	Crafts	Sports	Reading	Singing
Number of students	4	5	9	7	3

a. Sports. **b.** Singing.

c. 7 students. **d.** 9 – 5 = 4 students.

e. Drawing and crafts.

2.

a. Lion. **b.** Bear.

c. 13 students. **d.** Elephant and giraffe.

e. 13 – 4 = 9 students.

3.

a. 90 pounds ، April

b. 80 pounds ، February

c. 80 + 50 = 130 pounds.

d. 90 – 20 = 70 pounds.

e. 40 + 50 + 70 + 90 + 50 = 300 pounds.

f. 60 + 80 + 70 + 20 + 30 = 260 pounds.

g. March.

h. Hany saved the most ، Enas saved the least.

4.

a. Riyadh. **b.** 15 degrees.

c. 20 – 5 = 15 degrees.

d. 25 – 10 = 15 degrees.

5.

a. Primary 2 **b.** Primary 3

c. 100 – 20 = 80 students

d. 20 + 60 = 80 students

e. (60 + 90) – (90 + 50) = 150 – 140 = 10 students

f. 35 + 120 + 170 + 190 + 120 = 635 students

g. Because we compare among 5 grades and compare between two options.

(Answer may vary)

6.

a. 12 boys **b.** 4 girls

7.

a. 60 boys **b.** 60 girls

c. Third grade

8.

a. 8 boys **b.** 8 girls

c. Basketball.

9.

Table 1 : Yes, because we compare between maximum and minimum temperature.

Table 2 : No, because it is not comparing between 2 items.

Table 3 : Yes, because it is a compare between boys and girls.

10.

a. (1) bar graph

(2) double bar graph

(3) line plot

b. 8 squares

c. 5 children

d. Saly

e. 8

f. Oct.

Answers of multiple choice questions

1. A **2.** A **3.** D

4. D **5.** C **6.** B

7. D **8.** C

9. **a.** C **b.** D

10. C **11.** C **12.** A

13. B **14.** D **15.** C

Exercise 16

First Line plot

1.

a.

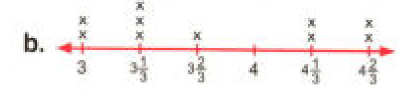
Key: Each x = 1 child

1. Weights of children in kg

2. $11\frac{1}{2}$ kg

3. 11 , $11\frac{3}{4}$ and $12\frac{1}{4}$ kg

b.



Key: Each x = 1 tree

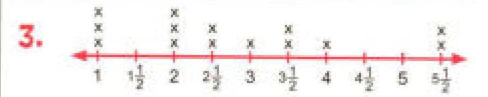
1. Heights of trees in meters

2. $3\frac{1}{3}$ m 3. $3\frac{2}{3}$ m

2.



3.



Key: Each x = 1 child

Ages of the nursey's kids

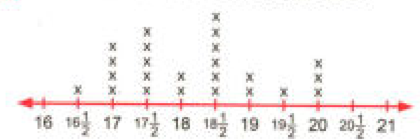
a. 3 children **b.** 1 child

c. 3 + 2 + 1 + 2 = 8 children

d. 3 – 1 = 2 children

e. 14 children

4. Marks of Mathematics test



Key: Each x = 1 student

a. 24 students

b. $16\frac{1}{2}$, 20

c. $18\frac{1}{2}$ marks

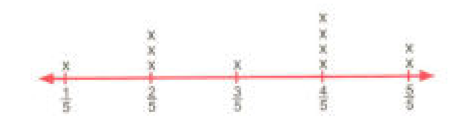
d. 2 + 6 + 2 + 1 + 3 = 14 students

e. 5 – 3 = 2 students

f. Most of students got less than 19.

[Answer may vary]

5.



Key Each x = 1 student

a. 11 students

b. $\frac{1}{5}$ km

c. $\frac{5}{5}$ km [1 km]

d. $\frac{4}{5}$ km

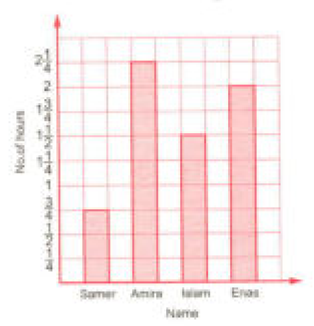
e. $\frac{1}{5}$ km and $\frac{3}{5}$ km

f. Most of students live far from the school.

[Answer may vary]

Second Breaking the bar

6. Internet usage



a. Amira

b. Samer

c. $2 - \frac{3}{4} = 1\frac{1}{4}$ hours

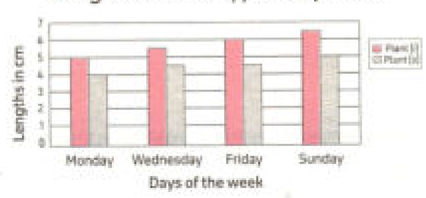
d. $2\frac{1}{4} + \frac{3}{4} = 3$ hours

e. $2 - 1\frac{1}{2} = \frac{1}{2}$ hour

7.

a.

Lengths of two types of plants

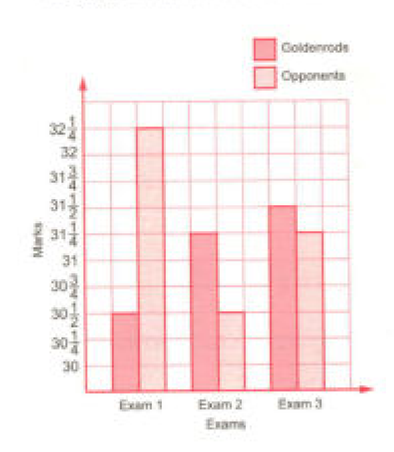


b. $6\frac{1}{5} - 5 = 1\frac{1}{5}$ cm

8.

The suitable type of graph is a double bar graph , because it compares two related sets of data.

Markes of the three exams



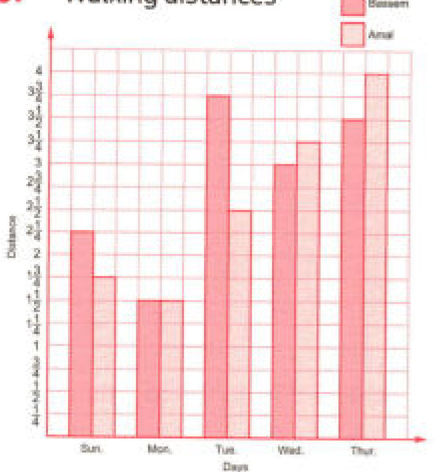
a. Goldenrods

b. Goldenrods

c. $31\frac{1}{2} - 30\frac{1}{2} = 1$ mark

d. $31\frac{1}{2} + 30\frac{1}{2} = 62$ marks

9. Walking distances



a. Tuesday b. Monday

c. Sunday

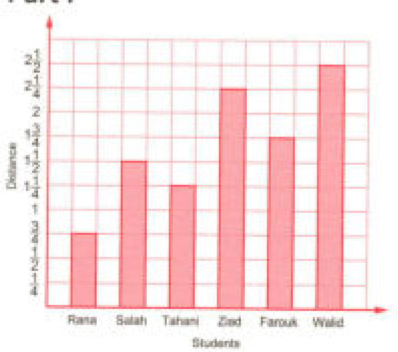
d. $1\frac{3}{4}+1\frac{1}{2}+2\frac{1}{2}+3\frac{1}{4}+4=13$ kilometers

e. $2\frac{1}{4}+1\frac{1}{2}+3\frac{3}{4}+3+3\frac{1}{2}=14$ kilometers

f. Wednesday

10.

Part 1



Question 1:

Who rolled the farthest ? Walid

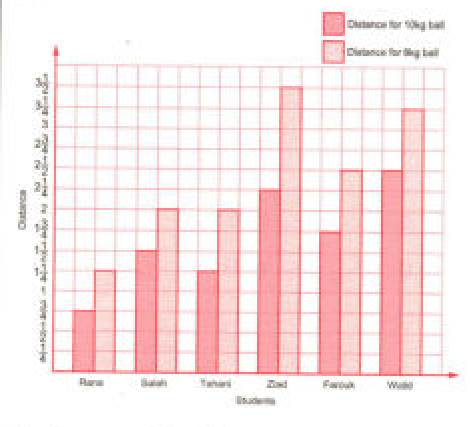
Question 2:

What is the difference between Ziad and Tahani ? 1 m

[Answers may vary]

Part 2

a.



b. Rana and Salah

c. Ziad

d. $3\frac{1}{2}+2\frac{1}{2}=6$ m

e. They would roll the ball farther than the roll of the 8 kg ball.

f. The total distance of Ziad and Farouk $=2\frac{1}{4}+1\frac{3}{4}+3\frac{1}{2}+2\frac{1}{2}=10$ m

[Answer may vary]

Unit 11 Assessment

1. a. C b. C c. C

d. C e. C f. B

g. A

2. First :

a. $6\frac{1}{3}$

b. double bar graph

c. bar graph

d. Double bar graph

Second :

a. Yasmin

b. $20 - 10 = 10$ marks.

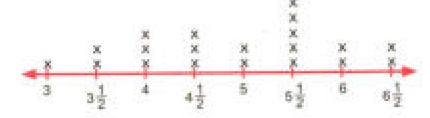
c. Jody.   d. $18 + 16 = 34$ marks

3. a. C   b. B   c. B

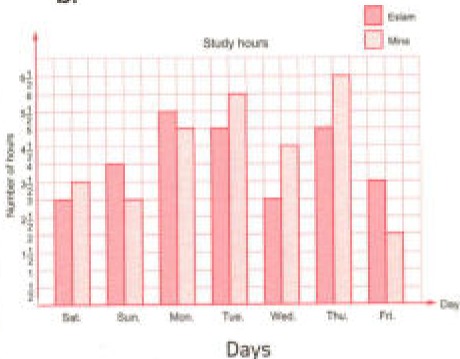
d. D   e. B   f. C

g. C

4. a.



b.



c. 1. $15 + 30 + 20 = 65$ girls

2. 25 boys

3. Pizza

4. $20 - 10 = 10$ pupils

Pupils / sport	Volley ball	Hand ball	Swimming	Foot ball
Boys	4	10	8	6
Girls	6	10	12	2

- Handball.

Answers of unit

12

Geometry

- **Concept 1 :** Geometric Concepts
- **Concept 2 :** Classifying Shapes



Exercise 17

1.

a. a straight line
b. a ray
c. a line segment
d. The ray
e. the straight line
f. the line segment

2.

$\overleftrightarrow{EF}$, $\overleftrightarrow{EG}$, $\overleftrightarrow{FG}$, $\overleftrightarrow{FE}$, $\overleftrightarrow{GE}$ or $\overleftrightarrow{GF}$

3.

a. Ray BC, $\overrightarrow{BC}$
b. Line BC, $\overleftrightarrow{BC}$
c. Ray YZ, $\overrightarrow{YZ}$
d. Line segment YZ, $\overline{YZ}$
e. Line YZ, $\overleftrightarrow{YZ}$
f. Line segment BC, $\overline{BC}$

4. **Answer by yourself.**

5.

a. • F
b. G H
c. X Y
d. S T
e. A B
f. X Y
g. D C

6.

A line is a straight path of points that goes on forever in two directions.
It has no endpoints.

A ray is a part of a line. It has one endpoint and extends forever in only one direction.

A line segment is a part of a line. It has two endpoints.

7.

- If you extend a line segment in one direction, you will create a ray.
- If you extend a line segment in both directions, you will create a line.

8.

a. Intersecting
b. Perpendicular
c. Intersecting
d. Parallel

9.

a. Intersecting
b. Parallel
c. Intersecting
d. Intersecting
e. Parallel
f. Intersecting

10.

a. $\overline{AW}$ and $\overline{ZF}$ **or** $\overline{AZ}$ and $\overline{WF}$
b. $\overline{ZA}$ and $\overline{AW}$ **or** $\overline{ZA}$ and $\overline{ZF}$ **or** $\overline{FW}$ and $\overline{AW}$ **or** $\overline{FW}$ and $\overline{ZF}$

11.

a. parallel
b. perpendicular
c. 4
d. parallel
e. intersecting

12.

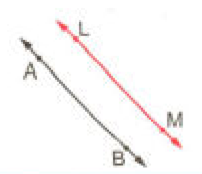
a. $\overline{CD}$
b. $\overline{AD}$
c. $\overline{BC}$
d. E

13.

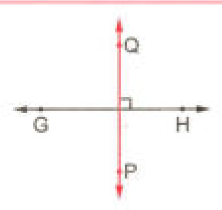
a. C b. B c. D

d. B e. A

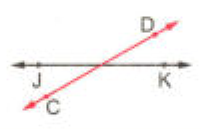
14.



15.



16.



17. Answer by yourself.

18. Answer by yourself.

19. Answer by yourself.

20. a. False b. True c. True

[Explain by yourself]

Answers of multiple choice questions

1. D **2.** C **3.** B
4. B **5.** C **6.** A
7. B **8.** A **9.** A
10. B

Exercise 18

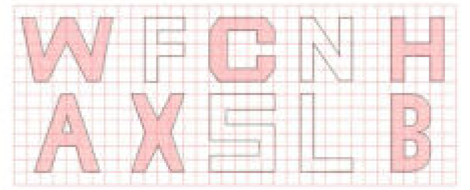
1.

a. no b. yes c. yes d. yes
e. yes f. yes g. no h. yes
i. yes j. yes

2.

a. yes b. yes c. yes d. yes
e. yes f. no g. no h. no
i. no j. yes k. yes l. yes
m. yes n. yes o. yes p. no

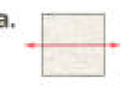
3.



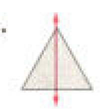
4.

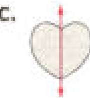
a.

b.

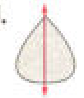


c.

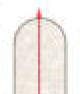




d.

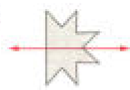


e.

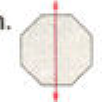


f.

g.

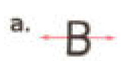


h.



[Some answers may vary]

5.





d. W

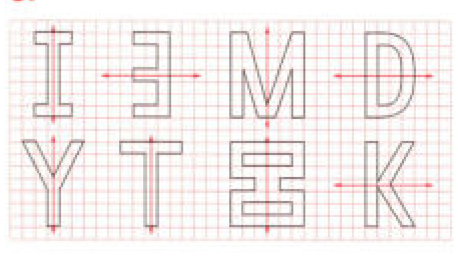
g. Y



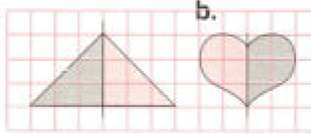


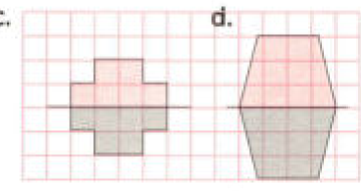
j. {

6.



7.





8. **Answer by yourself.**

9. **Answer by yourself.**

10.

a. Color by yourself.

b. Quadrilateral or Rectangle.

c. Color by yourself.

d. 10.

e. Color by yourself.

f. Garden - pentagon , Gazebo - octagon , Statue / Football field / Restrooms / Playground / Benches / Park - quadrilaterals.

g. Perimeter $= 2 \times (120 + 80) = 400$ m , area $= 120 \times 80 = 9{,}600$ m^2

h. Draw by yourself.

11. **Draw by yourself.**

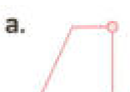
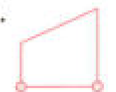
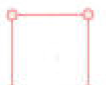
Answers of multiple choice questions

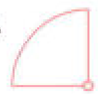
1.	D	**2.**	B	**3.**	C
4.	B	**5.**	A	**6.**	C
7.	D				

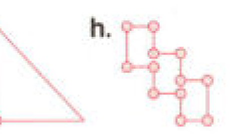
Concept 2 Classifying Shapes

Exercise 19

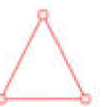
1.

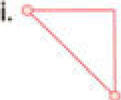
a. 
b. 
c. 

d. 
e. f. 

g. h. 

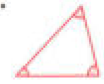
2.

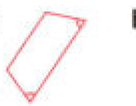
a. 
b. 

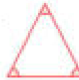
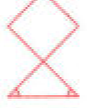
c. 
i. 

3.

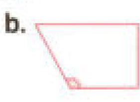
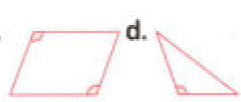


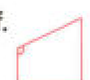
a. 
b. d. 

e. 
f. 
h. 

i. 
j. 

4.

b. 
c. d. 

f. 
g. i. 

5. Answer by yourself.

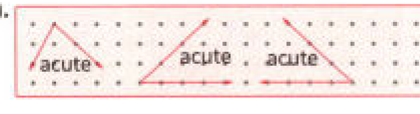
6.

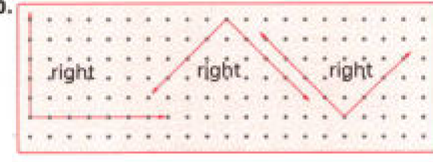
a. Smaller than ; Acute.
b. Larger than ; Obtuse.
c. Smaller than ; Acute.
d. Larger than ; Obtuse.
e. Equal to ; Right.
f. Smaller than ; Acute.

7.

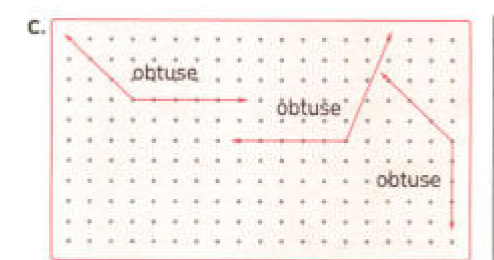
a. an acute. b. a right.
c. an obtuse. d. acute.
e. obtuse. f. 2

8.

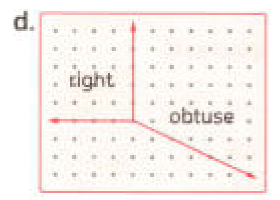
a. 


b. 

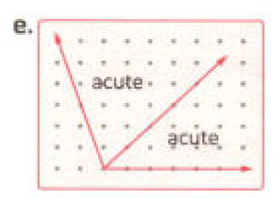
c.



d.



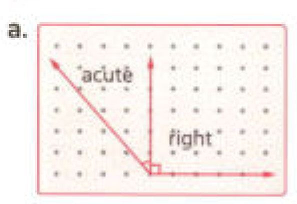
e.



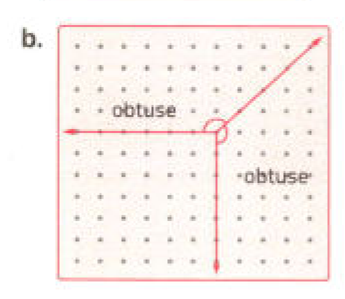
[Answers may vary]

9.

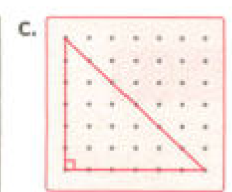
a.



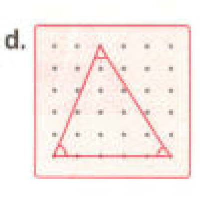
b.



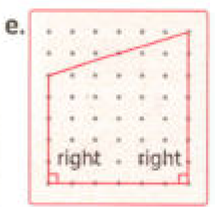
c.



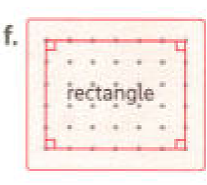
d.



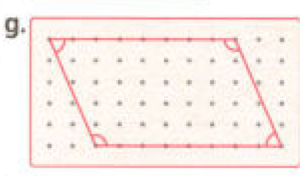
e.



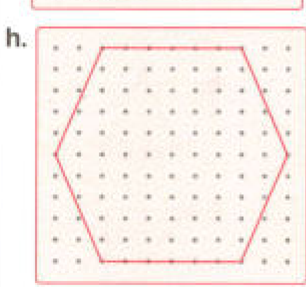
f.



g.



h.



[Answers may vary]

10. Answer by yourself.

11. Answer by yourself.

12. Answer by yourself.

Answers of multiple choice questions

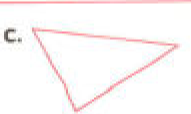
1. C **2.** A **3.** B
4. A **5.** A **6.** C
7. B **8.** B **9.** A
10. A

Exercise 20

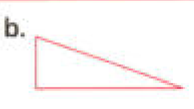
1. c.



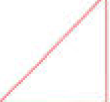
2. c.



3. b.



d.



4.

a. Isosceles
b. Isosceles
c. Scalene
d. Equilateral
e. Equilateral
f. Scalene
g. Isosceles
h. Scalene

5.

a. Acute
b. Acute
c. Right
d. Obtuse
e. Obtuse
f. Right
g. Obtuse
h. Right

6.

a. Isosceles and Obtuse.
b. Isosceles and Right.
c. Equilateral and Acute.
d. Isosceles and Right.
e. Isosceles and Acute.
f. Scalene and Obtuse.
g. Isosceles and Acute.
h. Isosceles and Acute.

7.

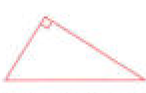
a. Equilateral
b. Scalene
c. Equilateral
d. Isosceles
e. Equilateral
f. Isosceles

8.

a. Right
b. Acute
c. Acute
d. Obtuse
e. Acute
f. Right

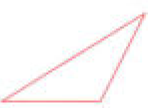
9.

a.



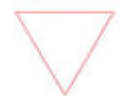
not equilateral and right triangle

b.



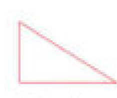
not right triangle and isosceles

c.



equilateral triangle

d.



right triangle

[Answers may vary]

10. Color by yourself.

11.

a. Isosceles triangle.

b. Obtuse triangle.

c. Equilateral triangle.

d. Scalene triangle.

e. Right triangle. f. Acute triangle.

g. Isosceles and Acute triangle.

h. Scalene and Obtuse triangle.

12.

a. False b. False c. False

d. True e. True f. False

g. False h. True i. False

j. False

13.

a. scalene b. equal c. isosceles

d. isosceles e. equilateral

f. scalene triangle g. 4

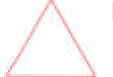
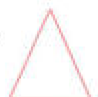
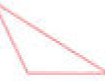
h. a right i. 2

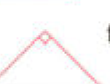
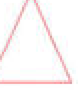
j. a right triangle

k. an obtuse triangle

l. an acute triangle

14.

a.  b.  c. 

d.  e.  f. 

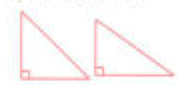
g. h.

[Answers may vary]

15. No, because the triangle with three equal sides is an acute triangle.

16. Yes, because each of them can be isosceles triangle.

17. Disagree. A right triangle may be Scalene or isosceles.



18. **Answer by yourself.**

Answers of multiple choice questions

1. A 2. C 3. C
4. B 5. B 6. D
7. C 8. A 9. B
10. C 11. A 12. C
13. C 14. C

Exercise 21

1.

a. Rectangle b. Trapezium

c. Parallelogram d. Rhombus

e. Quadrilateral f. Square

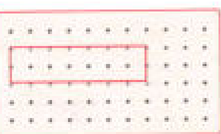
g. Trapezium h. Parallelogram

2.

a.

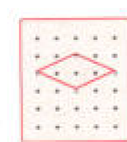
- **Name :** Parallelogram
- **Parallel Sides :** 2 pairs of parallel sides
- **Angles :** 2 acute angles and 2 obtuse angles

b.



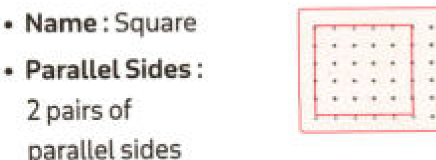
- **Name :** Rectangle
- **Parallel Sides :** 2 pairs of parallel sides
- **Angles :** 4 right angles

c.



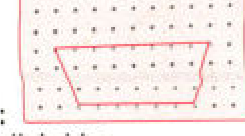
- **Name :** Rhombus
- **Parallel Sides :** 2 pairs of parallel sides
- **Angles :** 2 acute angles and 2 obtuse angles

d.



- **Name :** Square
- **Parallel Sides :** 2 pairs of parallel sides
- **Angles :** 4 right angles

e.



- **Name :** Trapezium
- **Parallel Sides :** One pair of parallel sides
- **Angles :** angles vary

3.

a. 4 **b.** 4 **c.** trapezium
d. square **e.** square **f.** 4
g. sides **h.** rhombus

4.

a. True **b.** False **c.** True
d. False **e.** True **f.** False
g. True **h.** True **i.** True
j. False

5.

a. Rhombus **b.** Trapezium
c. Square
d. Answer by yourself.

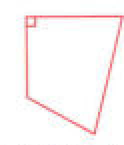
6.

a.



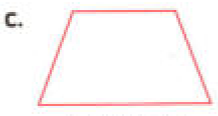
quadrilateral

b.



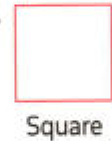
quadrilateral

c.



Trapezium

d.



Square

e.

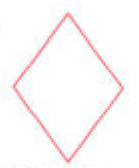
Parallelogram

f.



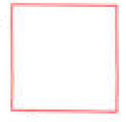
Rectangle

g.



Rhombus

h.



Square

7. Answer by yourself.

Answers of multiple choice questions

1.	B	**2.**	C	**3.**	D
4.	C	**5.**	D	**6.**	B
7.	A	**8.**	A	**9.**	A
10.	B	**11.**	B	**12.**	C

Unit 12 Assessment

1.

1. A 2. C 3. C 4. D
5. C 6. B 7. B

2.

1. Ray A B or $\overrightarrow{AB}$ 2. 2
3. 2 4. parallel
5. Angle 6. acute
7. isosceles 8. 4

3.

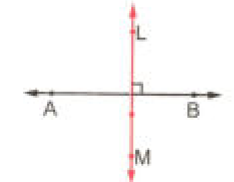
1. D 2. C 3. D
4. C 5. C 6. A
7. D

4.

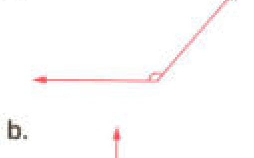
1. Square.

2. a. an acute triangle.
   b. 18

3.



4. a.

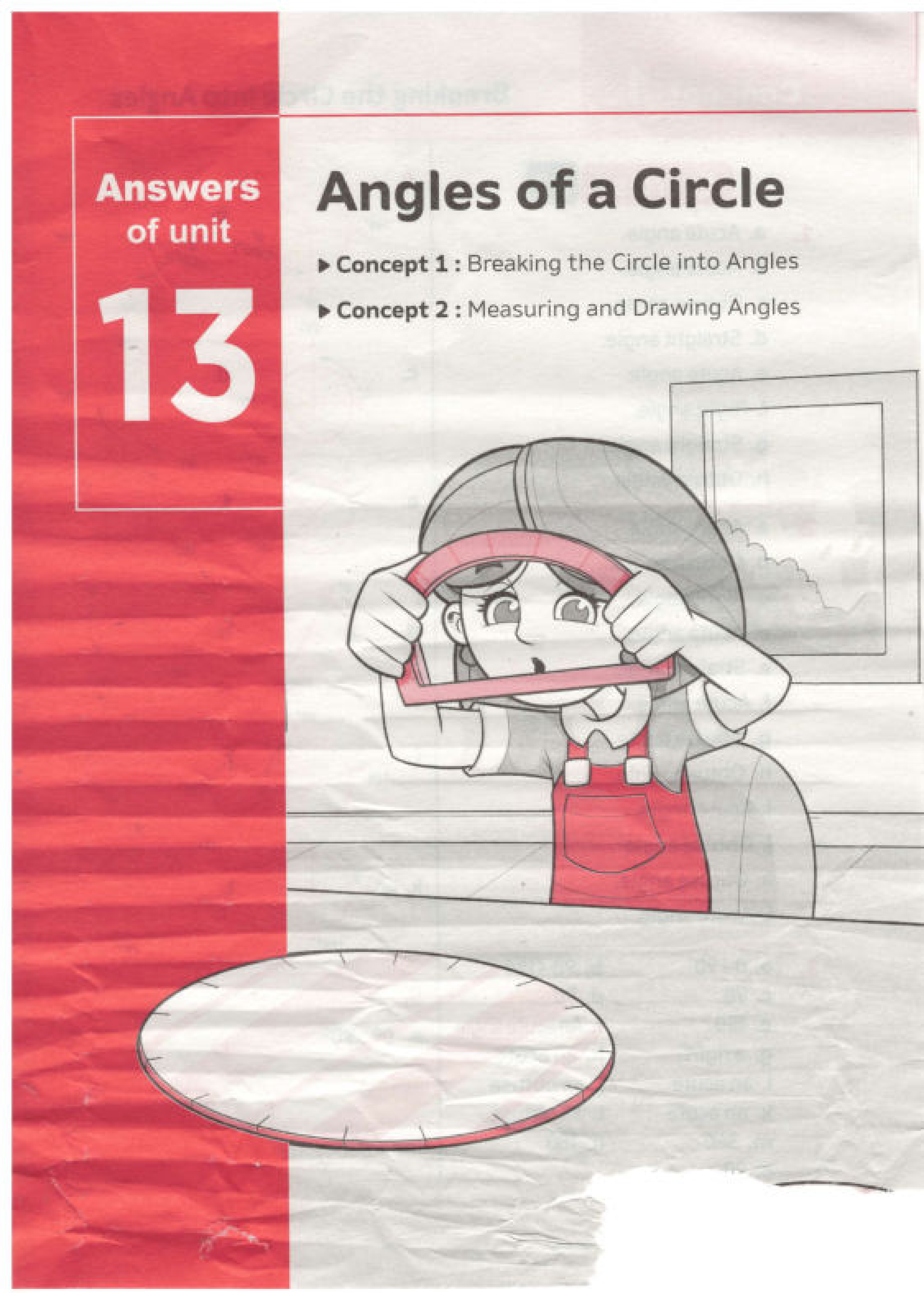


b.

Answers of unit 13

Angles of a Circle

- **Concept 1 :** Breaking the Circle into Angles
- **Concept 2 :** Measuring and Drawing Angles



Exercise 22

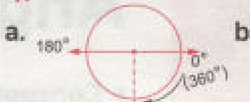
1.
- a. Acute angle.
- b. Acute angle.
- c. Obtuse angle.
- d. Straight angle.
- e. Acute angle.
- f. Right angle.
- g. Straight angle.
- h. Obtuse angle.

2.
- a. Acute angle.
- b. Obtuse angle.
- c. Right angle.
- d. Acute angle.
- e. Straight angle.
- f. Acute angle.
- g. Obtuse angle.
- h. Obtuse angle.
- i. Acute angle.
- j. Obtuse angle.
- k. Obtuse angle.
- l. Acute angle.

3.
- a. 0 , 90
- b. 90 , 180
- c. 90
- d. 90
- e. 180
- f. An acute angle
- g. a right
- h. an acute
- i. an acute
- j. an obtuse
- k. an acute
- l. an obtuse
- m. 360
- n. 180
- o. 90

4.

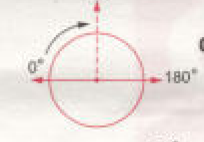
a.



b.



c.



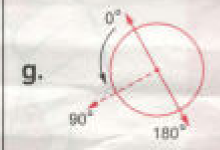
d.

e.

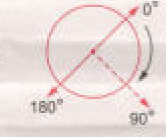
f.



g.



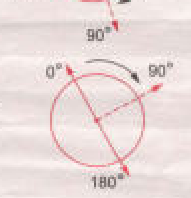
h.



i.



j.

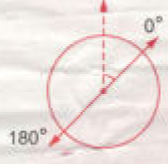


k.

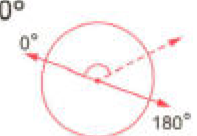
l.

5.

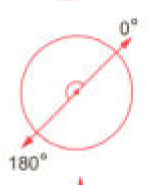
a. 0° , 90°



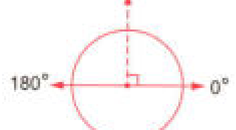
b. 90° , 180°



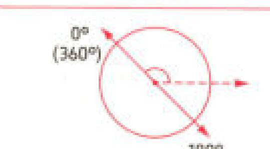
c. 180°



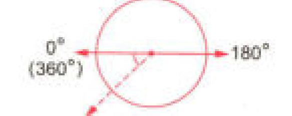
d. 90°



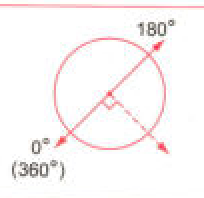
6.



7.



8.



Answers of multiple choice questions

1. A	2. C	3. A
4. A	5. D	6. B
7. A	8. A	9. A
10. B	11. C	12. A
13. C	14. A	15. B

Exercise 23

1. a. ⟶ 3 b. ⟶ 1

c. ⟶ 4 d. ⟶ 2

2. a. 30° b. 180° c. 60°

d. 150° e. 120° f. 90°

g. 330° h. 270°

3. a. $\frac{1}{12}$, 30° b. $\frac{5}{12}$, 150°

c. $\frac{3}{12} = \frac{1}{4}$, 90°

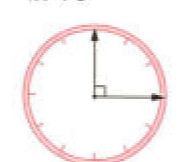
d. $\frac{6}{12} = \frac{1}{2}$, 180°

e. $\frac{4}{12} = \frac{1}{3}$, 120°

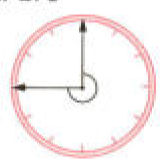
f. $\frac{2}{12} = \frac{1}{6}$, 60°

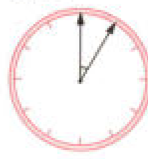
4.

a. 60° b. 90°



c. 270° d. 30°

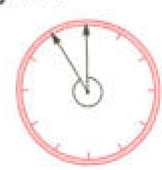




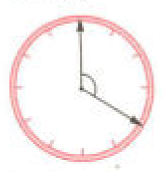
e. 150° f. 180°



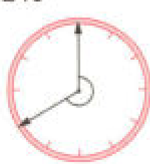
g. 330°



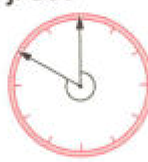
h. 120°



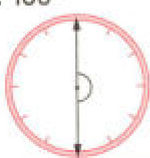
i. 240°



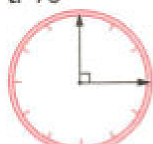
j. 300°



k. 180°



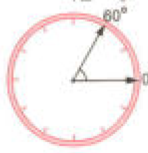
l. 90°



5.



a. $60° = \frac{2}{12} = \frac{1}{6}$



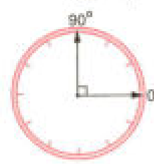


b. $210° = \frac{7}{12}$





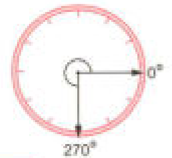
c. $90° = \frac{3}{12} = \frac{1}{4}$

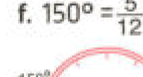


d. $300° = \frac{10}{12} = \frac{5}{6}$

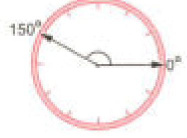


e. $270° = \frac{9}{12} = \frac{3}{4}$





f. $150° = \frac{5}{12}$



g. $360° = \frac{12}{12} = 1$



h. $180° = \frac{6}{12} = \frac{1}{2}$

6. a. 90° b. 120° c. 150°

7. a. 120° b. 150° c. 90°
d. 30° e. 150° f. 120°

8. a. 180° b. 90° c. 120°
d. 30° e. 150° f. 60°

Answers of multiple choice questions

1.	C	**2.**	D	**3.**	B
4.	A	**5.**	C	**6.**	B
7.	A	**8.**	B	**9.**	C
10.	C	**11.**	D	**12.**	A

Concept 2 Measuring and Drawing Angles

Exercise 24

1.
a. Acute , 60° b. Obtuse , 145°
c. Acute , 75° d. Straight , 180°
e. Acute , 25° f. Obtuse , 140°
g. Right , 90° h. Obtuse , 115°

2.
a. ∠ ABC , ∠ CBA , ∠ B , measure = 25°
b. ∠ JKL , ∠ LKJ , ∠ K , measure = 90°
c. ∠ PQR , ∠ RQP , ∠ Q , measure = 130°
d. ∠ DEF , ∠ FED , ∠ E , measure = 60°
e. ∠ STU , ∠ UTS , ∠ T , measure = 155°
f. ∠ ONM , ∠ MNO , ∠ N , measure = 25°

3.
a. 45° b. 120° c. 30°
d. 10° e. 150° f. 95°

4.
a. Names : ∠ HIJ , ∠ JIH , ∠ I
Vertex : I
sides : $\overrightarrow{IH}$, $\overrightarrow{IJ}$
Measure : 30°

b. Names : ∠ ZYX , ∠ XYZ , ∠ Y
Vertex : Y
sides : $\overrightarrow{YX}$, $\overrightarrow{YZ}$
Measure : 90°

c. Names : ∠ POQ , ∠ QOP , ∠ O
Vertex : O
sides : $\overrightarrow{OQ}$, $\overrightarrow{OP}$
Measure : 180°

d. Names : ∠ LMN , ∠ NML , ∠ M
Vertex : M
sides : $\overrightarrow{MN}$, $\overrightarrow{ML}$
Measure : 125°

e. Names : ∠ ABC , ∠ CBA , ∠ B
Vertex : B
sides : $\overrightarrow{BA}$, $\overrightarrow{BC}$
Measure : 35°

f. Names : ∠ VTU , ∠ UTV , ∠ T
Vertex : T
sides : $\overrightarrow{TU}$, $\overrightarrow{TV}$
Measure : 160°

5.
a. B b. $\overrightarrow{YX}$, $\overrightarrow{YZ}$
c. ∠ CBA or ∠ ABC or ∠ B
d. ∠ BAC or ∠ CAB or ∠ A
e. ∠ KLM or ∠ MLK or ∠ L
f. a protractor

6.
1. [a] ∠ ABC or ∠ CBA or ∠ B
[b] an acute angle
[c] 50

2. [a] 120 [b] an obtuse

3. [a] ∠ ABC or ∠ CBA or ∠ B

   [b] an acute angle

4. [a] ∠ DEF or ∠ FED or ∠ E

   [b] an acute angle [c] 60

5 [a] ∠ ABC or ∠ CBA or ∠ B

   [b] a right angle

   [c] 90

7. Rami's measurement does not make sense.

   The angle is an obtuse angle. So the measurement must by over 90°

Answers of multiple choice questions

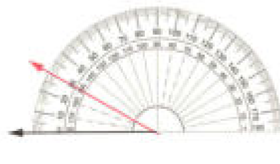
1.	B	2.	C	3.	B
4.	D	5.	A	6.	A
7.	C	8.	B	9.	D
10.	C				

Exercise 25

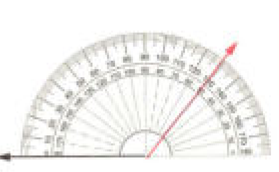
1. 1. ⟶ d 2. ⟶ a 3. ⟶ c
   4. ⟶ b 5. ⟶ e

2.

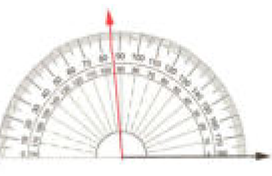
a. 30°



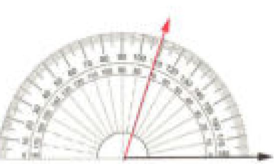
b. 128°



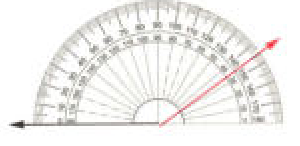
c. 95°



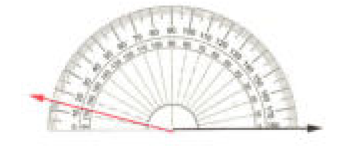
d. 72°



e. 144°



f. 165°

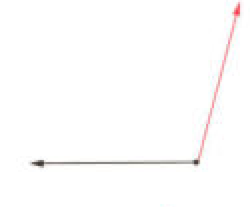


3.

a. 20°

b. 105°

c. 55°



d. 135°

e. 85°

f. 170°

4.

a. 20°

b. 40°

c. 10°

d. 60°

e. 80°

f. 140°

g. 100°

h. 150°

i. 70°

j. 120°

k. 170°

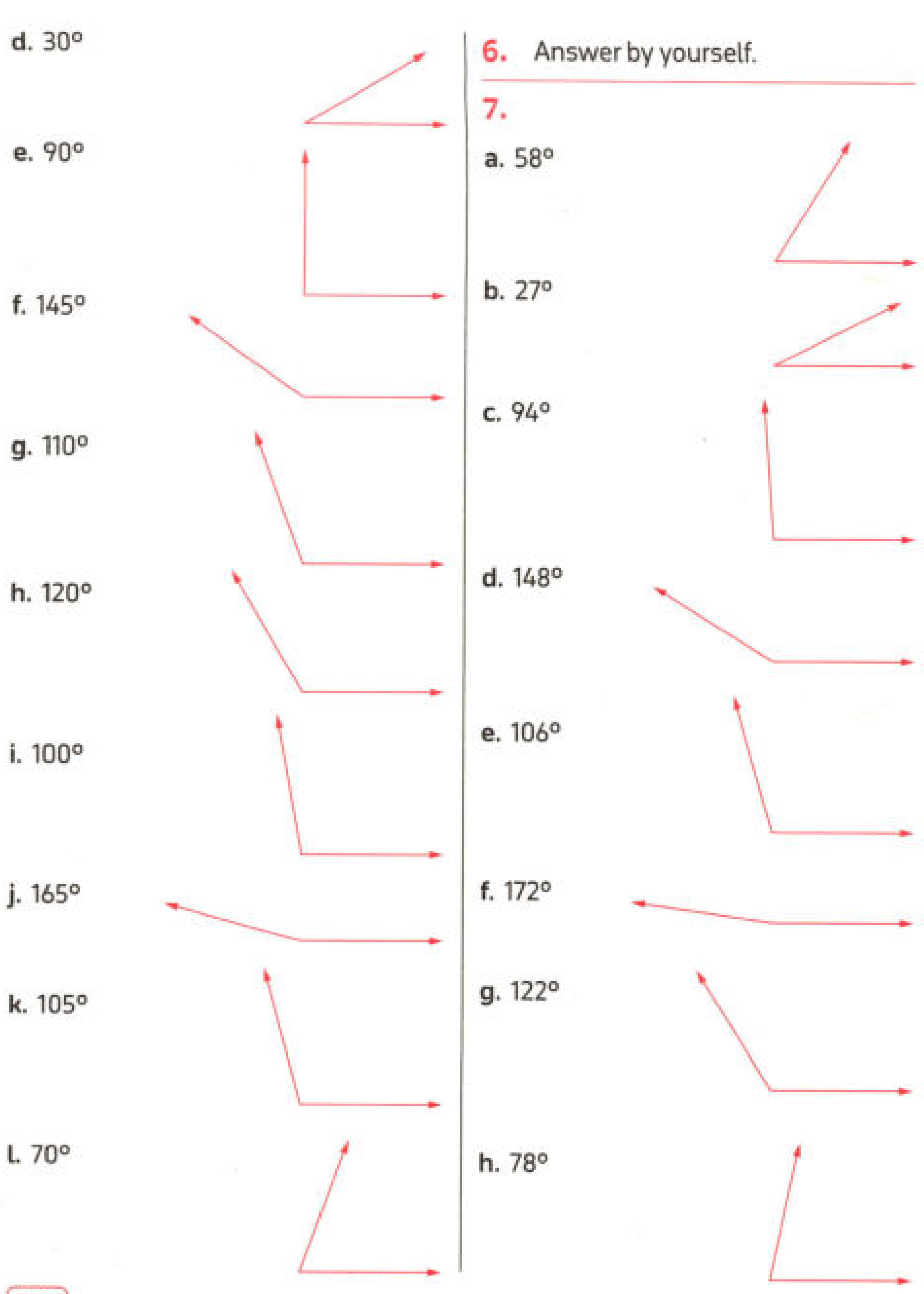
l. 130°

5.

a. 40°

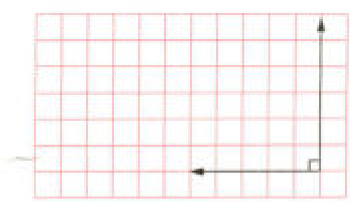
b. 55°

c. 60°

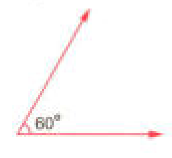

d. 30°
e. 90°
f. 145°
g. 110°
h. 120°
i. 100°
j. 165°
k. 105°
l. 70°
6. Answer by yourself.
7.
a. 58°
b. 27°
c. 94°
d. 148°
e. 106°
f. 172°
g. 122°
h. 78°

8.

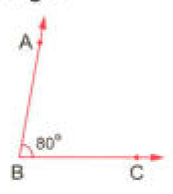
a. a right angle



b. an acute angle



c. an acute angle

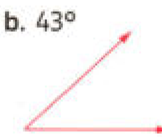


9. Answer by yourself.

10.

a. 54°

b. 43°



Name the place by yourself

11. **a.** a scalene triangle
b. an isosceles triangle
c. an equilateral triangle
d. an equilateral triangle
e. a scalene triangle
f. an isosceles triangle

12. **a.** an obtuse triangle
b. a right triangle
c. an acute triangle
d. a right triangle
e. an acute triangle
f. an acute triangle

13. **a.** 1. a scalene triangle
2. a right triangle
b. 1. a scalene triangle
2. an obtuse triangle
c. 1. an isosceles triangle
2. an acute triangle
d. 1. a scalene triangle
2. an obtuse triangle
e. 1. a scalene triangle
2. a right triangle
f. 1. an equilateral triangle
2. an acute triangle

Answers of multiple choice questions

1. D **2.** C **3.** A **4.** B

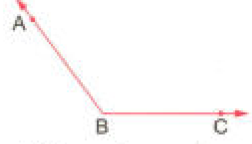
Unit 13 Assessment

1. 1. D 2. B 3. B
4. D 5. A 6. A
7. D

2. 1. $\overrightarrow{AC}$, $\overrightarrow{AB}$ 2. 90° , 180°
3. 90°
4. ∠STU , ∠UTS , ∠T
5. 20° 6. 30°
7. 90° 8. 360°

3. 1. B 2. C 3. A
4. A 5. C 6. C
7. B

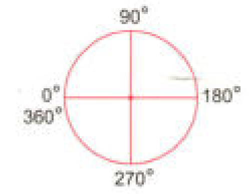
4. 1. Obtuse angle



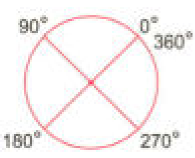
2. a. 40° , acute angle
b. 110° , obtuse angle
c. 90° , right angle

3. a. • a scalene triangle
• an acute triangle
b. • an isosceles triangle
• an obtuse triangle

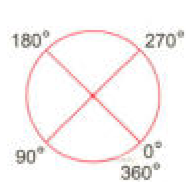
4. a.

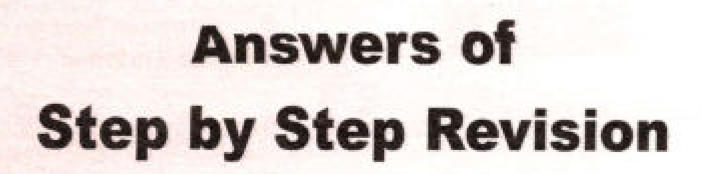


b.



c.





Answers of Step by Step Revision

Answers of Cumulative Assessments

Unit 9

Cumulative Assessment 1

1. a. C b. D
c. B d. B

2.
a. $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ $\frac{3}{4} = \frac{1}{4} + \frac{2}{4}$
b. $\frac{4}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ $\frac{4}{5} = \frac{1}{5} + \frac{3}{5}$

3. a. $\frac{1}{5}$ b. $\frac{3}{7}$
c. 3 d. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
e. $\frac{3}{6}$ f. $\frac{3}{4}$

4. a. $\frac{2}{3} = \frac{1}{3} + \frac{1}{3}$

b. $\frac{4}{7} = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$

Cumulative Assessment 2

1. a. $1\frac{2}{3}$ b. $\frac{21}{5}$ c. $\frac{1}{8}$
d. $\frac{6}{7}$ e. 10 f. 9

2. a. C b. A c. D
d. C e. C f. C

3. Improper fraction : $\frac{11}{8}$
Mixed number : $1\frac{3}{8}$

4. a. $\frac{47}{8}$ b. $\frac{23}{7}$ c. $\frac{23}{9}$

5. a. $2\frac{1}{3}$ b. $3\frac{3}{5}$ c. $6\frac{3}{4}$

Cumulative Assessment 3

1. a. $4\frac{4}{7}$ b. 8 c. $\frac{1}{6}$
d. 7 e. 4 f. 14

2. a. B b. C c. B
d. D e. A

3. a. $7\frac{5}{5} = 8$ b. $2\frac{2}{7}$ c. $1\frac{3}{4}$
d. $3\frac{10}{8} = 4\frac{2}{8}$ e. $\frac{3}{9}$ f. $2\frac{5}{5} = 3$

4. The left = $5\frac{3}{4} - 3\frac{1}{4} = 2\frac{2}{4}$ cakes.

Cumulative Assessment 4

1. a. C b. C c. B
d. D e. A

2. a. $4\frac{2}{3}$ b. $3\frac{3}{5}$ c. $1\frac{1}{5}$
d. $\frac{6}{7}$ e. 7 f. 15
g. $\frac{1}{5}$ h. $\frac{4}{7}$ i. $\frac{2}{5}$
j. $1\frac{4}{5}$

3. a. $3\frac{7}{5} = 4\frac{2}{5}$ b. $3\frac{1}{7}$
c. $\frac{9}{9} = 1$ d. $1\frac{3}{8}$

4. a. $\frac{1}{10}, \frac{3}{10}, \frac{6}{10}, \frac{7}{10}, \frac{9}{10}$
b. $\frac{11}{3}, \frac{11}{4}, \frac{11}{5}, \frac{11}{7}, \frac{11}{8}$

Cumulative Assessment 5

1. a. D b. C c. A
d. C e. A

2. a. 4 b. 16 c. 6

3. a. $\frac{1}{4}$ b. $\frac{4}{7}$ c. $\frac{13}{5}$
d. 2 e. $1\frac{1}{3}$ f. $\frac{1}{10}$
g. 5 h. less

4. Sara ,Adel

$1\frac{1}{3}$ = $\frac{4}{3}$

So, they ate the same amount.

Cumulative Assessment 6

1. a. C b. B c. A
d. B e. C f. D
g. C

2. a. $6\frac{7}{9}$ b. $2\frac{2}{5}$ c. $1\frac{2}{4}$
d. $2\frac{1}{4}$ e. $7\frac{6}{7}$ f. $\frac{5}{7}$

3. Number line: 0, $\frac{1}{10}$, $\frac{3}{10}$, $\frac{1}{2}$, $\frac{6}{10}$, $\frac{9}{10}$, 1

a. closest to $\frac{1}{2}$ b. closest to 1
c. closest to 0 d. closest to $\frac{1}{2}$

4. a. $\frac{1}{7}$, $\frac{5}{6}$, $\frac{8}{8}$
b. $\frac{7}{7}$, $\frac{5}{6}$, $\frac{5}{10}$, $\frac{1}{9}$

Cumulative Assessment 7

1. a. A b. A c. C
d. C e. C

2. a. $\frac{4}{6} = \frac{6}{9} = \frac{8}{12}$ b. $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$
c. $\frac{3}{9} = \frac{1}{3} = \frac{2}{6}$ d. $\frac{8}{14} = \frac{12}{21} = \frac{16}{28}$
e. $\frac{2}{10} = \frac{3}{15} = \frac{4}{20}$ f. $\frac{6}{10} = \frac{3}{5} = \frac{9}{15}$
[Answers may vary]

3. a. $8\frac{3}{5}$ b. $6\frac{1}{5}$ c. 15
d. 5 e. 5 f. $\frac{6}{7}$

4. The order is : $\frac{3}{8}$, $\frac{5}{10}$, $\frac{7}{9}$

5. $\frac{3}{4} = \frac{?}{12}$ (×3, ×3) $\frac{3}{4} = \frac{9}{12}$

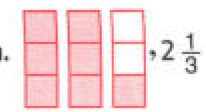
There are 9 chocolate cakes.

Cumulative Assessment 8

1. a. $4\frac{4}{8}$ b. $\frac{17}{5}$
c. $\frac{7}{9}$ d. 24
e. $\frac{4}{14} = \frac{6}{21} = \frac{8}{28}$ f. $\frac{6}{7}$

2. a. A b. B c. B d. D

3. a. $1 - \frac{2}{8} = \frac{6}{8}$
b. $2 - \frac{2}{3} = 1\frac{1}{3}$

4. a.  , $2\frac{1}{3}$

b. , $1\frac{1}{2}$

5. a. $2 \times \frac{1}{4}$ b. $6 \times \frac{1}{5}$

c. $3 \times \frac{1}{9}$ d. $4 \times \frac{1}{10}$

6. 6

Unit 10

Cumulative Assessment 9

1. a. C b. D c. A
d. B e. C

2. a. $5\frac{2}{8}$ b. $4\frac{3}{5}$ c. $2\frac{2}{4}$
d. 9 e. 0.07 f. 0.3

3. a. 0.08 b. 0.5 c. 0.15
d. 0.35 e. 0.01 f. 0.7

4. a. $\frac{8}{10}$ b. $\frac{9}{100}$ c. $\frac{18}{100}$
d. $\frac{74}{100}$ e. $\frac{4}{10}$ f. $\frac{31}{100}$

Cumulative Assessment 10

1. a. 0.4 , Tenths
b. 0.03 , Hundredths
c. 1 , Ones
d. 200 , Hundreds

2. a. Seven and eighteen hundredths.
b. One and seventy-three hundredths.
c. Six and two hundredths.

3. a. 5.62 b. 7.08 c. 4.74

4. a. D b. A c. A
d. C e. D

5. a. $1\frac{7}{9}$ b. $1\frac{1}{3}$
c. $5\frac{7}{5} = 6\frac{2}{5}$ d. $5\frac{3}{7}$

Cumulative Assessment 11

1. a. C b. B c. A
d. C e. A f. B

2. a. $1\frac{7}{10}$ b. $5\frac{24}{100}$ c. $11\frac{87}{100}$
d. $2\frac{5}{100}$ e. $14\frac{9}{10}$ f. $20\frac{23}{100}$

3. a. 20 b. 370 c. 1,040
d. 7.9 e. 4.20 f. 735

4. The order is : $\frac{5}{15}$, $\frac{5}{12}$, $\frac{5}{11}$, $\frac{5}{10}$, $\frac{5}{7}$

5. a. 70.2 cm b. 702 Tenths

Cumulative Assessment 12

1. a. A b. D c. A
d. C e. D

2. a. $\frac{8}{9}$ b. 219 c. 48
d. $2\frac{2}{4}$ e. $\frac{30}{100}$ f. 1.7
g. $\frac{1}{7}$ h. $\frac{5}{9}$ i. 2.22
j. 0.03 k. 2.9 l. $3\frac{2}{5}$

3. a. $3 + 0.7 + 0.09$
b. $6 + 0.04$
c. $4 + 0.8 + 0.09$

4. a. $\frac{40}{100}$ b. $\frac{7}{10}$ c. $\frac{50}{100}$
d. $\frac{9}{10}$ e. $\frac{80}{100}$ f. $\frac{1}{10}$

Cumulative Assessment 13

1. a. 22 b. $3\frac{3}{11}$ c. $3\frac{7}{10}$
d. $\frac{4}{5}$ e. 3.22 f. 0.7

2. a. B b. C c. B
d. C e. B f. D

3. $18\frac{4}{6}$ cm

4. Nermine

Cumulative Assessment 14

1. a. $5\frac{71}{100}$ b. $2\frac{91}{100}$ c. $9\frac{4}{5}$
d. $\frac{126}{100} = 1\frac{26}{100}$ e. $\frac{3}{5}$
f. $10\frac{5}{7}$

2. a. 4
b. Seven and twenty-seven hundredths
c. 9 d. $1\frac{2}{3}$ e. $6\frac{6}{9}$
f. 9.87 g. Hundredths

3. a. B b. D c. B
d. A e. B f. B

4. $\frac{105}{100}$ meters = $1\frac{5}{100}$ meters

Unit 11

Cumulative Assessment 15

1. a. D b. B c. A
d. B e. C

2. a. 25 b. $\frac{2}{7}$ c. 60
d. $\frac{7}{8}$ e. $5\frac{4}{5}$
f. Hundredths g. 0.14
h. $\frac{23}{4}$

3. a. 14 b. 16 c. Mango
d. Orange e. Watermelon
f. 23 g. 6

4. a. 4 b. $\frac{1}{5}$ c. $\frac{5}{7}$
d. $\frac{4}{7}$ e. $\frac{6}{9}$ f. $2\frac{2}{8}$

5. a. $\frac{2}{9}, \frac{4}{9}, \frac{5}{9}, \frac{6}{9}, \frac{7}{9}$
b. $\frac{3}{11}, \frac{3}{10}, \frac{3}{8}, \frac{3}{7}, \frac{3}{5}$

Cumulative Assessment 16

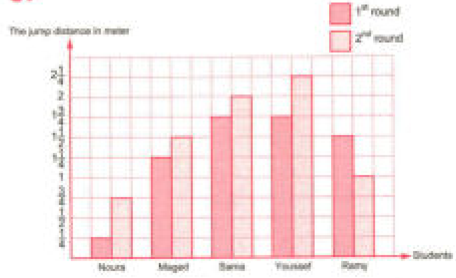
1. a. C b. B c. C
   d. B e. C f. C

2. a. 12 b. $\frac{74}{100}$ c. 7
   d. $\frac{3}{8}$ e. 9 f. $3\frac{4}{5}$
   g. 0.38 h. 0.06 i. $\frac{23}{4}$

3. a. 1 b. $3\frac{4}{5}$ c. $\frac{2}{4}$
   d. $6\frac{5}{7}$

4. a. $\frac{6}{7}$, $\frac{5}{7}$, $\frac{3}{7}$, $\frac{2}{7}$, $\frac{1}{7}$
   b. $\frac{2}{3}$, $\frac{2}{5}$, $\frac{2}{6}$, $\frac{2}{7}$, $\frac{2}{10}$

5.



a. Sama and Youssef b. Youssef
c. Ramy d. $\frac{1}{2}$ meter

Unit 12

Cumulative Assessment 17

1. a. D b. B c. A
   d. B e. C f. D

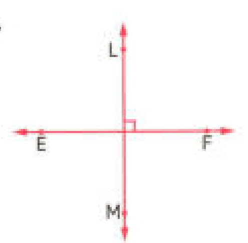
2. a. ray b. perpendicular
   c. $\frac{7}{9}$ d. $\frac{51}{100}$ e. 45

3. a. $\overleftrightarrow{BC}$ and $\overleftrightarrow{AD}$
   b. $\overleftrightarrow{BC}$ and $\overleftrightarrow{AB}$
   c. $\overleftrightarrow{AC}$ and $\overleftrightarrow{AD}$ [Answer may vary]

4. a.



b.



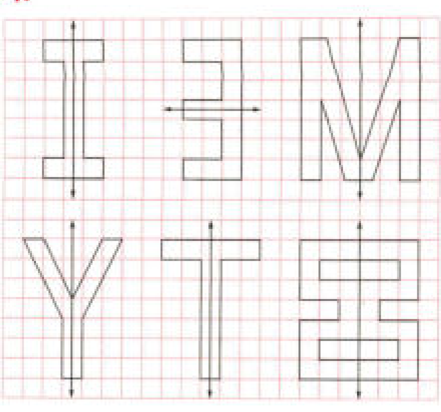
Cumulative Assessment 18

1. a. C b. C c. D
   d. B e. C f. B

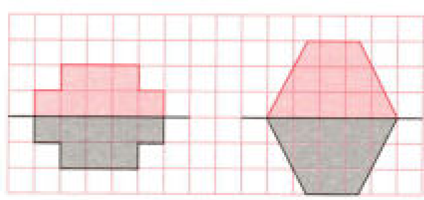
2. a. $\frac{3}{5}$ b. $4\frac{5}{7}$
   c. $\frac{1}{5}$ d. $\frac{14}{5}$
   e. Hundredths
   f. Thirty and three hundredths

3. a. $10\frac{3}{5}$ b. $1\frac{3}{5}$
   c. $2\frac{1}{9}$ d. $8\frac{5}{10}$

4.



5.



Cumulative Assessment 19

1. **a.** acute **b.** obtuse

c. line segment

d. parallel

e. $\frac{3}{7}$ **f.** $\frac{15}{7}$

2. **a.** B **b.** B **c.** A

d. C **e.** B **f.** D

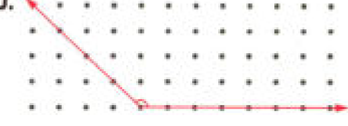
3. **a.** $3\frac{3}{5}$ **b.** $2\frac{4}{13}$

c. $\frac{5}{9}$ **d.** $\frac{3}{5}$

4.

a.

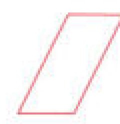
b.



c.

d.

5.



Cumulative Assessment 20

1. **a.** Isosceles ; acute triangle

b. Isosceles ; acute triangle

c. Scalene ; obtuse triangle

d. Equilateral ; acute triangle

e. Isosceles ; obtuse triangle

f. Isosceles ; right triangle

g. Scalene ; acute triangle

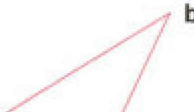
h. Scalene ; right triangle

2. a. C b. C c. A
d. D e. A f. C
g. C

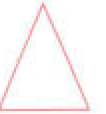
3. a. equilateral
b. scalene
c. 0.7 d. $7\frac{3}{7}$
e. $\frac{1}{5}$ f. 8

4.

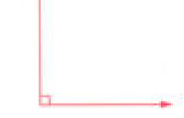
a.



b.



c.



Cumulative Assessment 21

1. a. B b. D c. C
d. D e. B f. C
g. D h. D

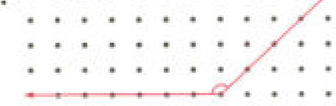
2. a. 4 b. 4 c. 34.17
d. 10 e. 71 f. $\frac{4}{7}$

3. a. $1\frac{2}{8}$ b. 6
c. $1\frac{1}{3}$ d. $10\frac{2}{3}$

4.

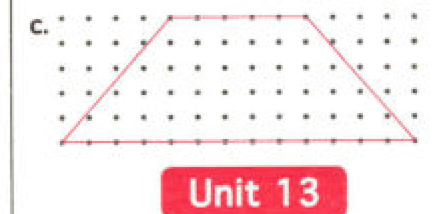
a.





b.

c.



Unit 13

Cumulative Assessment 22

1. a. D b. C c. B
d. C e. B f. C
g. D h. B i. B

2. a. an acute b. 90 , 180
c. 60 d. $\frac{22}{3}$
e. 200.14 f. $3\frac{1}{2}$
g. $\frac{2}{5}$

3. **a.** A right angle.

b. A straight angle.

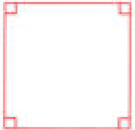
c. an obtuse angle.

d. an acute angle.

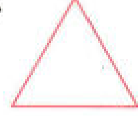
4. **a.** $9\frac{3}{5}$ **b.** $3\frac{2}{7}$ **c.** 1 **d.** $3\frac{1}{10}$

5.

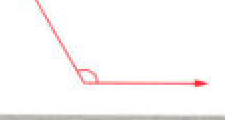
a.

b.



c.



Cumulative Assessment 23

1. **a.** A **b.** C **c.** B
d. B **e.** C **f.** A

2. **a.** 8 **b.** $2\frac{2}{9}$ **c.** 103
d. 3.05 **e.** 3 **f.** 3.33
g. $\frac{27}{100}$ **h.** $\frac{17}{5}$

3. **a.** $\frac{1}{12}$, 30°

b. $\frac{1}{3}$, 120°

c. $\frac{1}{2}$, 180°

4. **a.** $3\frac{4}{5}$ **b.** $4\frac{2}{11}$
c. $1\frac{1}{4}$ **d.** $10\frac{3}{7}$

5. **a.**

Sport / Pupils	Volleyball	Handball	Swimming	Football
Boys	6	10	12	10
Girls	4	10	8	6

b. 12 boys

c. 4 girls

Cumulative Assessment 24

1. **a.** angle BCD [Answer may vary]
b. angle BDC **c.** angle BAD

2. **a.** angle KLM **b.** angle XYZ
angle MLK angle ZYX
angle L angle Y

3. **a.** 7 **b.** $\frac{2}{5}$
c. 35 **d.** $4\frac{3}{5}$
e. 45 **f.** 2
g. 7 **h.** Hundredths
i. ray **j.** perpendicular
k. obtuse **l.** 3

4. **a.** B **b.** D **c.** C **d.** C
e. D **f.** C **g.** C

Cumulative Assessment 25

1. **a.** B **b.** C **c.** C
d. B **e.** C **f.** B
g. C **h.** C

2. a. Hundredths

b. Thirteen and thirteen hundredths.

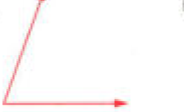
c. $\frac{4}{10}$ d. acute e. 2

f. equilateral

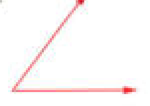
g. 25 h. 4

3.

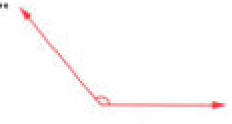
a.



b.



c.



4.

a. a scalene triangle
a right triangle.

b. an isosceles triangle
an acute triangle.

c. an equilateral triangle
an acute triangle.

Answers of Monthly Tests

March Tests

Test 1

1. 1. B 2. C 3. D
4. A 5. A

2. 1. $\frac{7}{2}$ 2. $4\frac{1}{9}$ 3. 15
4. $\frac{7}{10}$ 5. Tenths

3. a. (1) $\frac{18}{10}$ (2) 1.8

b. The left $= 3\frac{1}{4} - 2\frac{3}{4}$
$= 2\frac{5}{4} - 2\frac{3}{4}$
$= \frac{2}{4}$ kg

Test 2

1. 1. C 2. D 3. C
4. A 5. D

2. 1. 7.09 2. 0.9 3. $5\frac{4}{7}$
4. $1\frac{1}{3}$ 5. $\frac{7}{10}$

3. a. $\frac{1}{5}, \frac{3}{6}, \frac{9}{11}$

b. She read alone $= 2 - \frac{1}{2} - \frac{1}{2}$
$= 1$ hour

April Tests

Test 1

1. 1. C 2. B 3. B
4. D 5. B

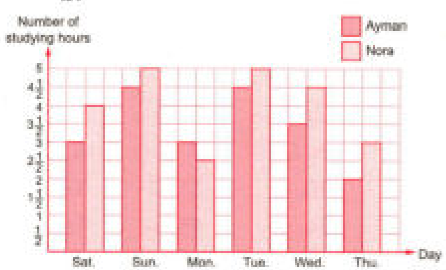
2. 1. perpendicular
2. $\frac{90}{100}$ or $\frac{9}{10}$ 3. ray
4. 390 5. 21

3. a. Gamal ⟶ $0.44 = \frac{44}{100}$

Hany ⟶ $\frac{6}{10} = \frac{60}{100}$

So, Hany walk along distance.

b.



Test 2

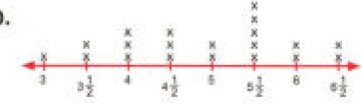
1. 1. B 2. C 3. B
4. D 5. D

2. 1. $\frac{104}{100}$ 2. straight line
3. intersecting
4. 5 5. 80

3. a. (1) $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$

(2) $\overleftrightarrow{AD}$ and $\overleftrightarrow{AB}$ or $\overleftrightarrow{AD}$ and $\overleftrightarrow{DC}$

b.



Answers of General Revision

Unit 9

1.

1. 5
2. 11
3. $\frac{6}{10}$
4. 8
5. 4
6. 3
7. 9
8. 5
9. $\frac{5}{7}$
10. 2
11. $7\frac{7}{9}$
12. $2\frac{1}{7}$
13. $\frac{3}{5}$
14. $\frac{3}{7}$
15. $\frac{21}{4}$
16. $5\frac{2}{3}$
17. $5\frac{4}{6}$
18. $\frac{5}{7}$

2.

1. B 2. B 3. D 4. B
5. C 6. C 7. B 8. C
9. D 10. D 11. D 12. C
13. B 14. B 15. A 16. B
17. C 18. C 19. B 20. D
21. A 22. D 23. C 24. D
25. B 26. B 27. B

3.

1. The left $= 2\frac{4}{5} - 1\frac{1}{5} = 1\frac{3}{5}$ cakes.
2. The total $= 1\frac{3}{8} + 1\frac{5}{8} = 3$ liters.
3. He bought $= 1\frac{1}{2} + 2\frac{1}{2} = 4$ kg.
4. The left $= 6\frac{4}{5} - 3\frac{1}{5} = 3\frac{3}{5}$ cakes.
5. There are $7 \times 3 = 21$ sevenths.
6. The red apples $= 18 \times \frac{2}{3} = 12$ apples
7. The order is : $\frac{3}{10}, \frac{3}{9}, \frac{3}{7}, \frac{3}{5}, \frac{3}{4}$
8. The order is : $\frac{1}{6}, \frac{5}{10}, \frac{8}{9}$

Unit 10

1.

1. Hundredths
2. Tenths
3. 0.05
4. 0.3
5. 0.6
6. 3.03
7. $\frac{7}{100}$
8. 60.8
9. 8.56
10. 2.19
11. 2.13
12. 3
13. $60 + 0.5 + 0.07$
14. $6 + 0.1 + 0.07$
15. 3.33
16. Twelve and eight hundredths
17. 24
18. $\frac{50}{100}$ or $\frac{5}{10}$
19. $6\frac{35}{100}$
20. $\frac{45}{100}$
21. $\frac{13}{100}$

2.

1. D 2. C 3. C 4. C
5. A 6. A 7. B 8. A
9. A 10. C 11. A 12. C
13. C 14. D 15. B 16. B
17. A 18. C 19. B 20. A
21. A 22. A 23. A 24. B
25. C 26. D 27. D 28. D
29. B 30. C 31. B

3.

1. 4.709

2. 3.7 , 370 Hundredths

3. Soha and Nora have 0.3 + 0.5

$= \frac{3}{10} + \frac{5}{10} = \frac{8}{10} = 0.8$ of the pizza

The remainder $= 1 - \frac{8}{10} = \frac{2}{10} = 0.2$ of the pizza.

4. Renad had $= \frac{7}{10} + \frac{35}{100}$

$= \frac{70}{100} + \frac{35}{100}$

$= \frac{105}{100} = 1.05$ meters.

5. The total $= \frac{7}{10} + \frac{13}{100} = \frac{70}{100} + \frac{13}{100}$

$= \frac{83}{100}$ meter.

6. Mina walked $= \frac{5}{10} + \frac{32}{100}$

$= \frac{50}{100} + \frac{32}{100} = \frac{82}{100}$ km.

$= 0.82$ km

Unit 11

1.

1. double bar graph 2. 4 3. 5

4. a. 8 b. 6

5. a. Handball ⟶ 10
   Swimming ⟶ 8
   Football ⟶ 6

   b. Volleyball

6. a.

Volleyball	Handball	Swimming	Football
	10	8	6
6	10	12	

b. 8 c. 6

7. a. Yellow b. 12 + 11 = 23

2.

1. B 2. D 3. B 4. D

5. D 6. D 7. C 8. B

9. A 10. a. A b. D c. C

11. A 12. B 13. C 14. C

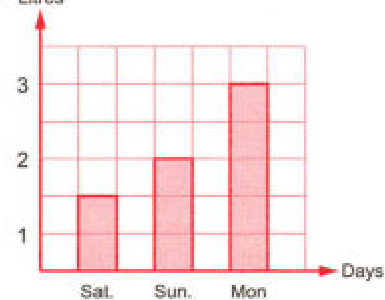
15. B 16. a. C b. A

3.

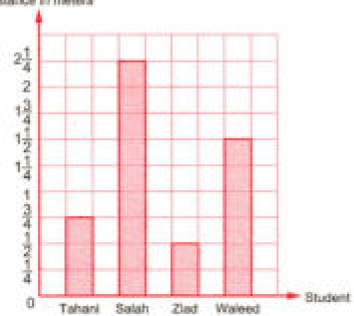
1. a. Ahmed b. Aly

c. 15 + 12 + 14 = 41 d. 15 – 12 = 3

2.



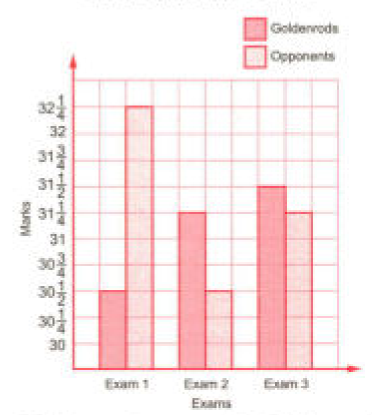
3.



4.

5. The suitable type of graph is a double bar graph , because it compares two related sets of data.

Markes of the three exams



a. Goldenrods b. Goldenrods

c. $31\frac{1}{4} - 30\frac{1}{2} = \frac{3}{4}$ mark

d. $31\frac{1}{2} + 31\frac{1}{4} = 62\frac{3}{4}$ marks

Unit 12

1.

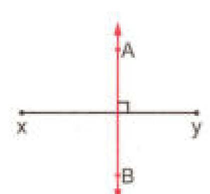
1. $\overleftrightarrow{XY}$
2. a ray
3. perpendicular
4. parallel
5. parallel
6. zero
7. an obtuse
8. an acute
9. a right
10. an acute
11. an equilateral
12. 2
13. equilateral
14. 8
15. acute
16.
17. 4
18. 4
19. 4
20. The trapezium

2.

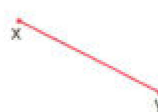
1. A	2. D	3. C	4. B
5. D	6. D	7. A	8. C
9. C	10. A	11. C	12. A
13. B	14. C	15. B	16. B
17. C	18. B	19. B	20. A
21. D	22. B	23. B	24. B
25. D	26. A	27. D	28. A
29. D			

3.

1.



2.



3. Hala is using a square.

4. **a.** $\overline{AB}$ and $\overline{CD}$ or $\overline{AC}$ and $\overline{BD}$.

   b. $\overline{AB}$ and $\overline{BD}$ or $\overline{BD}$ and $\overline{DC}$ or $\overline{DC}$ and $\overline{CA}$ or $\overline{CA}$ and $\overline{AB}$.

Unit 13

1.

1. 90°	**2.** 180
3. an obtuse	**4.** 90
5. 90	**6.** acute
7. scalene	**8.** an obtuse
9. the protractor	**10.** $\overrightarrow{AB}$, $\overrightarrow{AC}$
11. 90° , 180°	
12. ∠UTS , ∠STU , ∠T	
13. zero	**14.** a straight

2.

1. A	**2.** A	**3.** A	**4.** A
5. B	**6.** A	**7.** D	**8.** D
9. C	**10.** B	**11.** B	**12.** D
13. B	**14.** C	**15.** C	**16.** C
17. C	**18.** C	**19.** C	**20.** C
21. C	**22.** B		

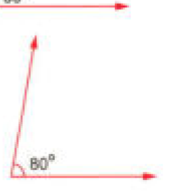
3.

1.

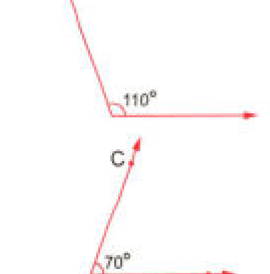


Acute

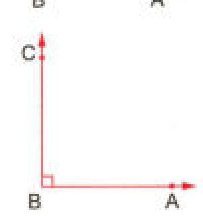
2.



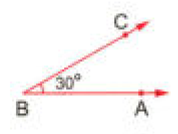
3.



4.



5.



6.

C
30°
B A

7. a. ∠CBD **b.** ∠ABD

8. a. scalen triangle , right triangle.

b. Isosceles triangle , acute triangle.

9. a. 40° , acute angle.

b. 110° , obtuse angle.

c. 90° , right angle.

Answers of Directorates Exams

1 Cairo

1.

1. D	2. B	3. C	4. C
5. C	6. C	7. B	

2.

1. 230 2. 150 3. $\frac{1}{2}$

4. scalene 5. $\frac{16}{5}$ 6. $25\frac{6}{8}$

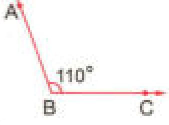
7. 3 , 3 8. an isosceles

3.

1. A	2. B	3. B	4. B
5. C	6. B	7. D	

4.

1. **Type :** obtuse angle



2. 1.4 < 1.6

So, Amira bought less.

3. **a.** $\frac{5}{7}$ **b.** 0.31 **c.** $\frac{2}{9}$ **d.** $\frac{3}{5}$

4. **a.** Jessica **b.** 2 marks
   c. Samy

2 Cairo

1.

1. C	2. C	3. A
4. B	5. D	6. A
7. C		

2.

1. 13 2. 5.62

3. perpendicular

4. $\frac{2}{9}$ 5. $1\frac{4}{6}$ 6. 3

7. 25 8. 5.2

3.

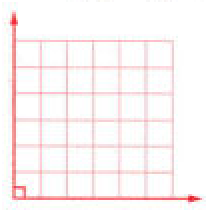
1. C	2. C	3. A
4. C	5. B	6. D
7. A		

4.

1. 15 2. $2\frac{4}{13}$

3. The order is : $\frac{7}{100}$, $\frac{3}{10}$, $\frac{5}{10}$, $\frac{9}{10}$

4.



3 Giza

1.

1. B	2. A	3. C
4. D	5. C	6. B
7. C		

2.

1. 2.4 2. acute 3. 5

4. 5.55 5. $\frac{15}{7}$ 6. 4

7. 3.03 8. 15 students

3.

1. A	2. C	3. C
4. B	5. A	6. D
7. B		

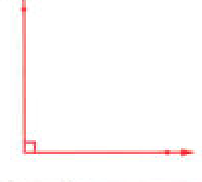
4.

1. $\frac{2}{5} = \frac{x}{15}$, x = 6 (× 3)

So, there are 6 birds flew away.

2. $4\frac{3}{5}$ 3. $2\frac{4}{7}$

4.



4 Giza

1.

1. B	2. A	3. B
4. B	5. A	6. C
7. C		

2.

1. 3	2. $\frac{7}{100}$	3. 180
4. 4	5. an obtuse	6. $\frac{3}{10}$
7. 7.3	8. 5.51	

3.

1. A	2. A	3. D
4. D	5. C	6. B
7. C		

4.

1. an acute
2. The total distance = 1.1 + 0.9 = 2 Km.
3. The order is : 0.9 , 0.5 , 0.08 , 0.03
4. The remainder = $1 - \frac{1}{6}$
$= \frac{5}{6}$ of the home work.

5 Alexandria

1.

1. C	2. B	3. B	4. C
5. A	6. D	7. A	

2.

1. $3\frac{2}{9}$	2. 52	
3. square	4. $\frac{2}{5}$	5. two
6. 3	7. >	8. $\frac{1}{2}$

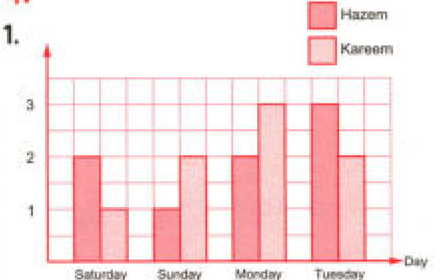
3.

1. C	2. A	3. B
4. C	5. D	6. A
7. B		

4.



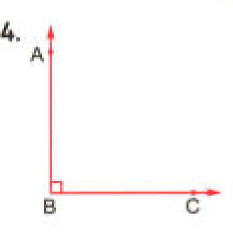
1.



2. a. A straight line b. A ray

3. Hossam walked = $\frac{5}{10} + \frac{21}{100} = \frac{71}{100}$
= 0.71 km.

4.



6 El-Kalyoubia

1.

1. A 2. C 3. A
4. B 5. A 6. C
7. D

2.

1. 3 2. $4\frac{3}{4}$ 3. $\frac{5}{6}$
4. 0.07 5. ∠ ABC 6. 90
7. $\frac{7}{2}$ 8. red

3.

1. B 2. B 3. D
4. A 5. C 6. D
7. A

4.

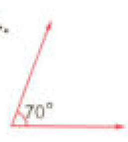
1. The remaining part $= 1 - \frac{2}{5}$
$= \frac{3}{5}$ of pizza

2. Yasser walked $= \frac{2}{10} + \frac{5}{10} = \frac{7}{10}$ Km.

3.



4.



7 El-Sharkia

1.

1. B 2. B 3. C
4. A 5. A 6. C
7. D 8. B 9. B
10. C 11. B 12. C
13. A 14. A

2.

1. 0.7 2. 6.04 3. ray
4. 20 5. acute 6. obtuse
7. 10 8. 0.38

3.

1. 1 2. $5\frac{3}{7}$
3. $6\frac{4}{7}$ 4. $\frac{3}{5}$

8 El-Monofia

1.

1. A 2. A 3. B
4. A 5. A 6. A
7. B

2.

1. $\frac{1}{3}$ 2. $3\frac{7}{9}$ 3. $1\frac{1}{5}$
4. a ray 5. $\frac{2}{5}$ 6. an isosceles
7. $4\frac{1}{5}$ 8. 2.13

3.

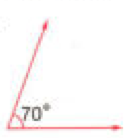
1. C 2. A 3. B
4. A 5. B 6. A
7. D

4.

1. The order is : $\frac{1}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{5}{8}$, $\frac{7}{8}$

2. Hady had $= 3\frac{3}{4} - 2\frac{1}{4} = 1\frac{2}{4}$ cookies.

3.



4.

Pupils	Primary 1	Primary 2	Primary 3	Primary 4
Boys	4	6	5	3
Girls	5	6	3	7

9 El-Gharbia

1.

1. C 2. C 3. C
4. A 5. B 6. A
7. A

2.

1. $3\frac{3}{5}$ 2. $\frac{6}{8}$ or $\frac{3}{4}$
3. a quadrilateral
4. 0.03 5. a protractor
6. 0.4 7. a right angle
8. $\frac{1}{11}$

3.

1. B 2. C 3. C
4. C 5. A 6. B
7. B

4.

1. 5 2. $1\frac{1}{3}$

3.

A

B C

4. Green < Blue < Yellow < Red

10 El-Dakahlia

1.

1. C 2. B 3. B
4. C 5. D 6. B
7. D

2.

1. $\frac{15}{7}$ 2. $\frac{5}{8}$ 3. a straight line
4. Hundredths 5. 2
6. 90 7. $\frac{41}{100}$ or 0.41
8. 7.34

3.

1. B 2. C 3. B 4. B
5. B 6. B 7. C

4.

1. Primary 2

2. $\frac{1}{5} = \frac{x}{20}$, x = 4 (× 4)

So, there are 4 chocolate cakes.

3. [1] B [2] an acute angle.

4. Hossam walked $= \frac{7}{10} + \frac{21}{100}$
$= \frac{91}{100}$ or 0.91 km.

11 Ismailia

1.

1. C 2. B 3. D
4. C 5. A 6. C
7. D

2.

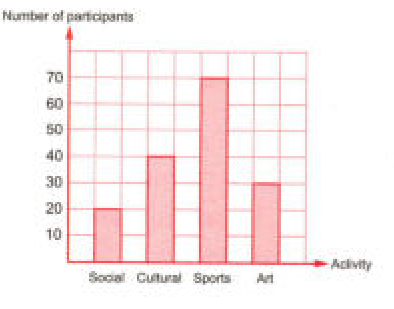
1. 0.1 2. parallel 3. $\frac{21}{4}$
4. 180 5. 34
6. trapezium
7. 15 8. a bar graph

3.

1. C 2. A 3. A
4. B 5. A 6. C
7. A

4.

1. The order is : 3.04 , 3.4 , 4.03 , 4.3
2. Mazen has $= 3\frac{3}{4} - 2\frac{1}{4}$
   $= 1\frac{2}{4}$ cookies
3. a. ∠ LMN or ∠ NML or ∠ M
   b. an obtuse angle.
4.



12 Suez

1.

1. D 2. C 3. C
4. D 5. C 6. A
7. B

2.

1. 0.6 2. $\frac{4}{5}$ 3. 10
4. $\frac{1}{2}$ 5. 3 6. 4
7. 90 8. 8 students

3.

1. D 2. A 3. D
4. A 5. D 6. D
7. B

4.

1. The order is : $\frac{1}{9}$, $\frac{4}{9}$, $\frac{5}{9}$, $\frac{6}{9}$
2. Hossam walked $= \frac{5}{10} + \frac{21}{100} = 0.71$ km
3. a. Acute
   b. Right
4.

Month	December	January	February	March
No. of days	2	6	14	4

13 Damietta

1.

1. A 2. B 3. C
4. C 5. B 6. D
7. B

2.

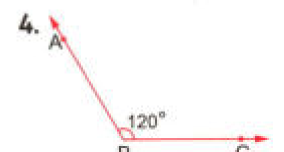
1. 7.92
2. an obtuse angle
3. $\frac{5}{8}$
4. 3
5. $3\frac{1}{5}$
6. 90
7. 15
8. cow

3.

1. D
2. C
3. A
4. B
5. A
6. C
7. D

4.

1. $\frac{23}{100}$ or 0.23
2. Hady had $= 3\frac{2}{3} - 2\frac{1}{3}$
   $= 1\frac{1}{3}$ cookies
3. a. 10
   b. Vanilla
4.



14 Kafr El-Sheikh

1.

1. C
2. C
3. D
4. B
5. C
6. D
7. A

2.

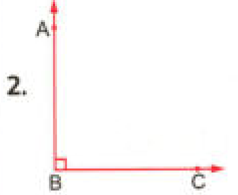
1. D
2. B
3. D
4. B
5. A
6. D
7. B

3.

1. an acute
2. $\frac{5}{7}$
3. $\frac{7}{2}$
4. 9
5. 2
6. 24
7. 3.4
8. an obtuse

4.

1. $6\frac{2}{5}$
2.



3. $3\frac{2}{9}$
4. The left $= 4\frac{3}{7} - 2\frac{1}{7} = 2\frac{2}{7}$ cakes.

15 Beni Suef

1.

1. C
2. D
3. A
4. A
5. B
6. D
7. C

2.

1. $3\frac{3}{5}$
2. 16
3. $\frac{1}{3}$
4. 0.06
5. ray
6. ABC
7. acute
8. 3.25

3.

1. B
2. B
3. C
4. A
5. D
6. C
7. A

4.

1. The left = $5\frac{3}{4} - 3\frac{1}{4} = 2\frac{2}{4}$ cakes
2. The order is : $\frac{1}{10}$, $\frac{3}{10}$, $\frac{7}{10}$, $\frac{9}{10}$
3. 70°
4.

Sport / Pupils	Volleyball	Handball	Swimming	Football
Girls	6	10	12	10
Boys	4	10	8	6

3.

Hours
$4\frac{1}{2}$
4
$3\frac{1}{2}$
3
$2\frac{1}{2}$
2
$1\frac{1}{2}$
Sat Sun Mon Tue
Day

4.

A
120°
B C

16 El-Menia

1.

1. D 2. C 3. B
4. A 5. C 6. D
7. C

2.

1. parallel 2. 6 3. isosceles
4. 7.9 5. 9 6. a ray
7. 0.35 8. 0.6

3.

1. D 2. A 3. B
4. B 5. A 6. C
7. A

4.

1. $2\frac{4}{8}$ 2. $4\frac{3}{5}$

17 Souhag

1.

1. B 2. C 3. B
4. A 5. B 6. B
7. B

2.

1. 1 2. 0 3. $7\frac{3}{10}$
4. a ray 5. 10 cm^2 6. $\frac{2}{5}$
7. 6 cm. 8. a rectangle

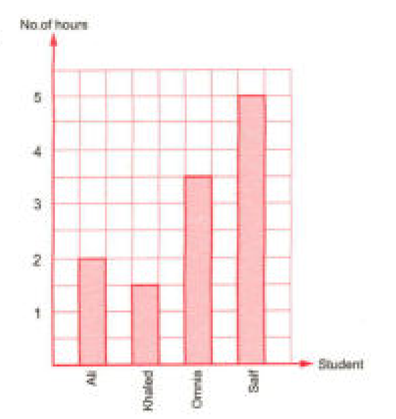
3.

1. A 2. D 3. A
4. C 5. D 6. A
7. B

4.

1. The left = $\frac{8}{8} - \frac{3}{8} = \frac{5}{8}$ parts
2. The order is : $\frac{1}{10}$, $\frac{2}{10}$, $\frac{5}{10}$, $\frac{7}{10}$, $\frac{10}{10}$
3. a. Parallel b. Perpendicular

4.



18 Qena

1.

1. C 2. A 3. A
4. A 5. A 6. A
7. C 8. D 9. D
10. C 11. D 12. D
13. D 14. B

2.

1. 12.4 2. $\frac{17}{5}$ 3. two
4. $\frac{2}{5}$ 5. four
6. $2 + 0.6$ 7. 180 8. 3

3.

1. a. $7\frac{1}{8}$ b. $1\frac{5}{6}$

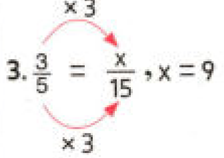
2. $0.44 = \frac{44}{100}$

$\frac{6}{10} = \frac{60}{100}$

$, \frac{60}{100} > \frac{44}{100}$

So, Hany has to walk a long distance to the school.

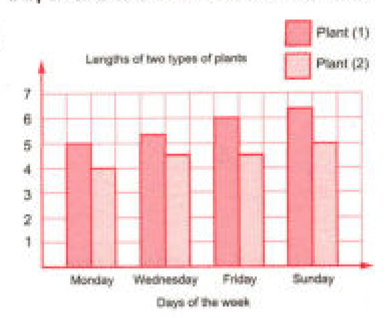
3.



$\frac{3}{5} = \frac{x}{15}, x = 9$

So, there are 9 chocolate cakes.

4.



19 Aswan

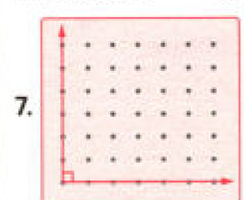
1.

1. B 2. D 3. C
4. B 5. C 6. B
7. D

2.

1. parallel 2. $3\frac{11}{12}$ 3. $\frac{23}{100}$
4. an acute 5. 15 6. one

7.

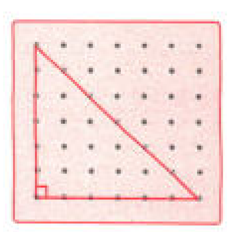


8. $1\frac{3}{4}$

3.

1. C 2. B 3. B
4. A 5. C 6. A
7. B

4.

1. 

2. They drank = $\frac{4}{10} + \frac{30}{100} = \frac{7}{10}$ litre.

3. $\frac{2}{3} = \frac{x}{9}$, x = 6 (× 3)

So, there are 6 chocalate chip.

4. Primary 2

20 South Sinai

1.

1. C	2. A	3. C
4. B	5. C	6. B
7. A		

2.

1. $\frac{3}{4}$	2. $\frac{11}{100}$	3. 0.3
4. parallel	5. 5	6. $\frac{1}{6}$
7. a square	8. obtuse	

3.

1. B	2. B	3. D
4. B	5. A	6. C
7. D		

4.

1. $0.6 = \frac{6}{10}$

, $\frac{6}{10} > \frac{4}{10}$

So, Ahmed drinks more.

2. $5\frac{7}{9}$

3. a. ∠ ABC or ∠ CBA or ∠ B

b. a right angle.

4. 

